Test Bank for Business Mathematics In Canada 10th Edition by Jerome

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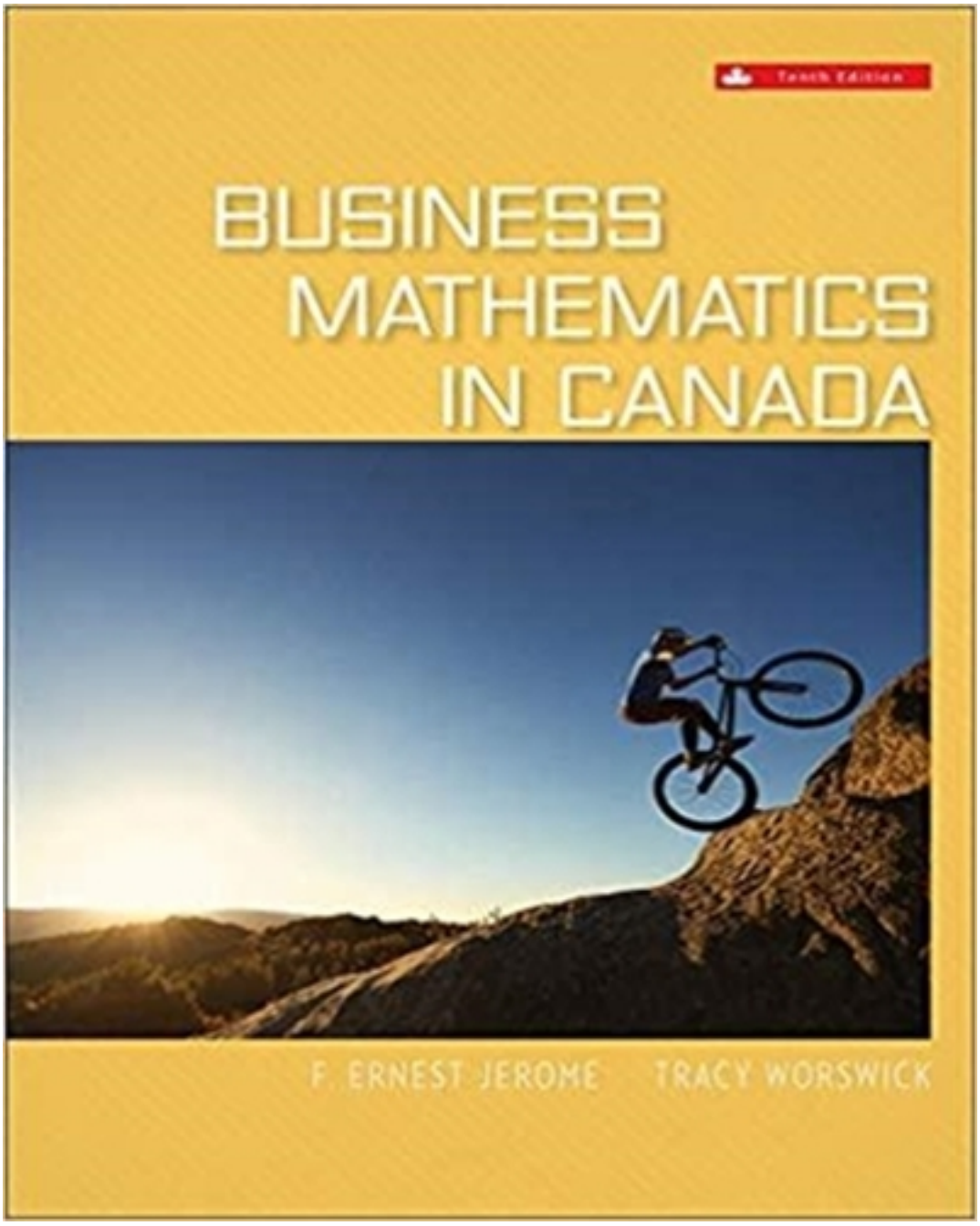

Test Bank

Chapter 02
Review and Applications of Algebra

Multiple Choice Questions

1. Simplify and collect like terms: -a + (2b - c) - (a - b + c)
A. -2a + 3b - 2c
B. -2a + b - 2c
C. 3b - 2c
D. -2a + 3b
E. -2a + 2b - 2c

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

2. Simplify and collect like terms: 1 - (3x - xy + y) - (-x + y - 5xy)
A. 1 - 2x - 2y - 6xy
B. 1 - 2x - 2y + 6xy
C. 1 - 4x - 2y + 6xy
D. 1 - 2x - 2y + 4xy
E. 1 - 4x - 2y - 6xy

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

3. Simplify and collect like terms: $3(x - 2y) + 4x(2x + y)$
A. $3x + 6xy + 4xy$
B. $7x^2$ -3x + 6y 4xy
C. $8x^2 + 3x-6y + 4xy$
D. $8x^2 - 9xy + 6^x - 4y$
E. $8x^2 + 10x - 6y + 6xy$

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

4. Simplify and collect like terms: $9x - [4y - 3(x - y)]$
A. $12x + 7y$
B. $6x - 7y$
C. $6x + 7y$
D. $12x - 7y$
E. $9x - 7y$

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

5. Simplify and collect like terms: $\frac{4x + 5}{8} - 2.1(x - 7)$
A. -1.6x - 14.075
B. -1.6x - 15.325
C. 2.6x + 15.325
D. 2.6x - 14.075
E. -1.6x + 15.325

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

6. Simplify and collect like terms: $\frac{X}{4}+\frac{1}{4}-0.7x^2-\frac{1x}{2}+\frac{3}{4}$

A. $-0.7x^2 - 0.25x + 1$
B. $0.7x^2 - 0.4x + 1.15$
C. $-0.7x^2 - 0.4x + 0.35$
D. $0.7x^2 - 0.4x + 0.35$
E. $-0.7x^2 - 0.8x + 1.15$

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

7. Simplify and collect like terms: $\frac{P}{1+0.07\times\frac{5}{12}}+2P\left(1+0.07\times\frac{4}{12}\right)$

A. 3.076P
B. 3.018P
C. 2.787P
D. 3.532P
E. 2.956P

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

8. Simplify and collect like terms: $x\left(1+0.045\times\frac{55}{365}\right)+\frac{2x}{\left(1-0.045\times\frac{200}{365}\right)}$

A. 2.957x
B. 2.208x
C. 3.057x
D. 2.068x
E. 1.983x

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

9. Simplify the following:

$\frac{6xy - 6x^2}{2x}$

A. $3x + 3y$
B. $3xy - 2x$
C. $3xy + 2x^3$
D. $3x - 3y$
E. $3x - 23^2$

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

10. Simplify the following: $\frac{10xy^2 - 15x^3y^2 + 25xy^4}{5xy}$

A. $2y^2 - 3x^2y + 5y^3$
B. $2xy - 3x^2y + 5y^3$
C. $2y - 3x^2y + 5y$
D. $2y - 3x^2 + 5y$
E. $2y - 3x^2y + 5y^3$

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

11. Simplify the following: $a \times a^6 \times a^3$

A. a^8
B. a^7
C. a^{10}
D. a^{12}
E. a^{13}

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

12. Simplify the following: $(a^2)(a^{-6})(a^3)$
A. a^{11}
B. a
C. a^{-36}
D. a^{-1}
E. a^{-5}

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

13. Simplify the following: $b^8 \div b^2$
A. b^4
B. b^{10}
C. b^{16}
D. b^{-6}
E. b^6

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

14. Simplify the following: $y^8 \div y^{-5}$
A. y^{13}
B. y^3
C. y^{-40}
D. y^{40}
E. y^{-13}

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

15. Simplify the following: $(x^5)^2$
A. x^9
B. x^{10}
C. x
D. x^{-1}
E. x^0

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

16. Simplify the following: $(2x^3)^5$
A. $10x^{15}$
B. $32x^8$
C. $32x^{15}$
D. $2x^{15}$
E. $2x^8$

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

17. Simplify the following: $\dfrac{(x^5)(x)(x^{-3})}{x^{-4}}$
A. x^{-1}
B. x^6
C. x^{-2}
D. x^7
E. x^2

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

18. Simplify the following: $\frac{(a^3)^{-2}}{a^6}$

A. a^0
B. a
C. a^{-11}
D. a^{-5}
E. a^{-12}

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

19. Simplify the following: $\frac{(2a^3b^2)^4}{a^2b^3}$

A. $16a^{10}b^5$
B. $2a^{10}b^5$
C. $16a^3b^3$
D. $2a^5b^5$
E. $16a^5b^3$

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

20. Simplify the following: $\left(\frac{4x}{2x^3}\right)^{-2}\left(\frac{3y^2}{2y^3}\right)^{2}\left(\frac{3xy}{5}\right)^{-1}$

A. $\frac{5x^2}{16y^3}$

B. $\frac{15x^3}{16y^3}$

C. $\frac{5x^3}{8y^2}$

D. $\frac{15x^3}{4y^3}$

E. $\frac{5x^2}{8y^2}$

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

21. Evaluate the following: $20^{1/2}$

A. 10
B. 400
C. 4.47
D. 4.65
E. 5.73

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

22. Evaluate the following: $-16^{5/4}$

A. 32
B. 64
C. -64
D. -32
E. 10

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

23. Evaluate the following: $\sqrt[4]{(121.89)^2}$

A. 14,857.17
B. 487.56
C. 3714.29
D. 60.945
E. 11.04

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

24. Evaluate the following: $\dfrac{1.04^{10} - 1}{0.04}$

A. 12.006
B. 698.137
C. 1.201
D. 36.006
E. 35.58

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

25. Evaluate the following: $\dfrac{1.055^{6}-1}{0.055}$

A. 233.95
B. 6.888
C. 0.689
D. 23.395
E. 23.763

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

26. Evaluate the following: $\dfrac{1-1.075^{-8}}{0.075}$

A. -5.857
B. -10.446
C. 5.857
D. 0.5857
E. 13.485

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

27. Evaluate the following: $\dfrac{1-1.056^{-15}}{0.056}$

A. -9.971
B. -22.579
C. 58.29
D. 9.971
E. 25.743

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

28. Evaluate the following: $\left(\frac{4}{3}\right)^{2}\left(\frac{3}{4}\right)^{-3}\left(\frac{4}{3}\right)^{-5}$

A. $\frac{4}{3}$

B. $\frac{3}{4}$

C. $\frac{16}{3}$

D. $\frac{4}{9}$

E. 1

Difficulty: Hard
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

29. The retail price of a computer is $250.00, which includes a discount of 50%. What is the original price of the computer?

A. $500
B. $125.00
C. $166.67
D. $375.00
E. $400.00

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

30. The retail price of a packaged CD is $60.00, which includes a tax of 4%. What is the actual price of the CD before tax?
A. $57.60
B. $57.69
C. $61.60
D. $50.00
E. $62.00

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

31. The commission on a transaction is 3% of the first $100,000 and 2% of the balance. What was the amount of a transaction where the commission charged was $10,100?
A. $225,000
B. $545,000
C. $310,000
D. $355,000
E. $455,000

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

32. Sam has $20,000 to invest. He invested part of the money at 5% and the rest at 6%. His investments earned $1120 total interest for the year. How much did Sam invest at each rate?
A. $12,000 at 5% and $8000 at 6%
B. $10,000 at 5% and $10,000 at 6%
C. $6000 at 5% and $14,000 at 6%
D. $14,000 at 5% and $6000 at 6%
E. $8000 at 5% and $12,000 at 6%

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

33. Anders has $35,000 to invest. He invested $20,000 at 3% and $15,000 at 4%. How much total interest did Anders earn?
A. $1,200
B. $600
C. $2,400
D. $800
E. $900

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

34. Tickets for the school play were $3 for students and $5 for all others. The box office sold 750 tickets for a total of $3200. How many student tickets were sold?
A. 475
B. 275
C. 500
D. 250
E. 300

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

35. At a United Way fundraiser, students sold a small drink for $2 and a large drink for $3. If they sold 75 drinks and they sold twice as many large drinks to small drinks, how much money did they earn?
A. $100
B. $125
C. $200
D. $250
E. $150

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

36. Simplify and collect like terms: 8 - (2x + 4y - 3) - (4y + 10)
A. -8y - 2x + 21
B. -8y - 2x + 1
C. -8y - 2x - 2
D. -2x + 1
E. -2x + 21

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

37. Simplify and collect like terms: (5x - 2y)(x - 2y)
A. $5x^2 - 12xy - 4y^2$
B. $5x^2 + 8xy - 4y^2$
C. $5x^2 - 12xy + 4y^2$
D. $5x^2 - 8xy + 4y^2$
E. $5x^2 + 12xy + 4y^2$

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

38. Simplify and collect like terms: 2(b - 2) - (b - 2)
A. b + 6
B. 3b - 2
C. 3b + 2
D. b - 2
E. b - 6

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

39. Simplify and collect like terms: $\frac{6a+9}{3} - 4(a-1)$

A. -2a + 13
B. -2a - 1
C. -2a + 7
D. 2a + 7
E. 2a - 1

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

40. Evaluate the following: $2.48832^{1/5}$

A. 95.396217
B. 0.0104826
C. 1.2
D. 3.0
E. 0.8333333

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

41. Simplify the following: $\left(\frac{r^3t^4}{t}\right)^3$

A. r^9t^4
B. r^6t^6
C. r^6t^7
D. r^9t^{11}
E. r^9t^9

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

42. Simplify the following: $\frac{(r^9)^2(r^6)}{r^{12}}$

A. r^5

B. $r^{17/12}$

C. r^{12}

D. r^2

E. r^{36}

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

43. Evaluate the following: $(8^2)(2^{-4})(2)^2$

A. 1024

B. 256

C. 4

D. 48

E. 16

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

44. Solve for the unknown variable: $2x + \frac{1}{8}x = x + 10$

A. $3\frac{1}{5}$

B. $8\frac{8}{9}$

C. $-3\frac{1}{5}$

D. $4\frac{12}{17}$

E. $\frac{9}{80}$

Difficulty: Medium
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

45. Solve for the unknown variable: $\frac{2}{3}(x + 3) = -\frac{1}{2}(6x + 20) + 15$

A. $2\frac{5}{6}$

B. $\frac{9}{11}$

C. 1.5

D. $-2\frac{13}{22}$

E. 3.875

Difficulty: Hard
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

46. Solve for the unknown variable: $-\left(\frac{1}{2}x - 5\right) = 2x - 10$

A. 6
B. -6
C. -10
D. $3\frac{1}{3}$
E. 10

Difficulty: Easy
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

47. Solve for the unknown variable: $\frac{x}{1.5^2} + 3x(1.5)^2 = 100$

A. 13.9082
B. 13.8996
C. 14.8148
D. 25
E. 225

Difficulty: Hard
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

48. An employee earns $1600 for 50 hours of work during last week. His regular workweek is 40 hours and he's paid overtime at time and one-half the regular rate of pay. What is the regular hourly rate of pay?
A. $29.09
B. $32.00
C. $29.52
D. $28.52
E. $25.00

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

49. The price of a litre of gasoline has decreased by 25% since last month. The new price is $1.08 per litre, what was the old price?
A. $1.41
B. $1.33
C. $.81
D. $1.44
E. $1.52

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

50. A company laid off 80% of its work force. The number of employees after the layoff is 3000. How many employees were there before the layoff?
A. 5400
B. 7200
C. 3600
D. 15,000
E. 3750

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

51. The population of a city has grown by 10% in year one, 12% in year two and decreased by (5%) in year three. If the original population was 20,000, what is the current population?
A. 28,459
B. 23,408
C. 24,640
D. 22,000
E. 23,580

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

52. Bill and Ted decide to throw a party. Bill will have twice as many friends attend as Ted. If each agrees to pay their own share (per friend) and the party will cost $900, what will be the cost per guest if Bill asks twenty friends to attend?
A. $10
B. $20
C. $30
D. $45
E. $50

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

53. John and Jill agree to form a partnership. The partnership agreement requires that John invests $7000.00 less than one-half of what Jill is to invest. If the total investment of both is $125,000.00, how much is Jill's investment?
A. $88,000.00
B. $37,000.00
C. $78,666.67
D. $46,333.33
E. $74,393.33

Accessibility: Keyboard Navigation
Difficulty: Hard
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

54. A used car lot sold 150 cars this month. They had budgeted to sell 200 cars. By what percentage did they fall short?
A. 25%
B. 50%
C. 12.5%
D. 20%
E. 40%

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

Short Answer Questions

55. Simplify and collect the like terms: (-p) + (-3p) + (4p)

0

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

56. Simplify and collect the like terms: (5s - 2t) - (2s - 4t)

3s + 2t

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

57. Simplify and collect the like terms: $4x^2y + (-3x^2y) - (-5x^2y)$

$6x^2y$

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

58. Simplify and collect the like terms: $1 - (7e^2 - 5 + 3e - e^3)$

$e^3 - 7e^2 - 3e + 6$

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

59. Simplify and collect the like terms: $(6x^2 - 3xy + 4y^2) - (8y^2 - 10xy - x^2)$

$7x^2 + 7xy - 4y^2$

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

60. Simplify and collect the like terms: $(7m^3 - m - 6m^2 + 10) - (5m^3 - 9 + 3m - 2m^2)$

$2m^3 - 4m^2 - 4m + 19$

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

61. Simplify and collect the like terms: $2(7x - 3y) - 3(2x - 3y)$

$8x + 3y$

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

62. Simplify and collect the like terms: $4(a^2 - 3a - 4) - 2(5a^2 - a - 6)$

$-6a^2 - 10a - 4$

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

63. Simplify and collect the like terms: $15x - [4 - 2(5x - 6)]$

$25x - 16$

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

64. Simplify and collect the like terms: $6a - [3a - 2(2b - a)]$

$a + 4b$

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

65. Simplify the following: $4a(3ab - 5a + 6b)$

$12a^2b - 20a^2 + 24ab$

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

66. Simplify the following: $9k(4 - 8k + 7k^2)$

$36k - 72k^2 + 63k^3$

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

67. Simplify the following: $-5xy(2x^2 - xy - 3y^2)$

$-10x^3y + 5x^2y^2 + 15xy^3$

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

68. Simplify the following: $-(p^2 - 4pq - 5p)\left(\frac{2q}{p}\right)$

$-2pq + 8q^2 + 10q$

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

69. Simplify the following and collect the like terms: $(4r - 3t)(2t + 5r)$

$20r^2 - 7rt - 6t^2$

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

70. Simplify the following and collect the like terms: $(3p^2 - 5p)(-4p + 2)$

$-12p^3 + 26p^2 - 10p$

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

71. Simplify the following and collect the like terms: $3(a - 2)(4a + 1) - 5(2a + 3)(a - 7)$

$2a^2 + 34a + 99$

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

72. Simplify the following and collect the like terms: $5(2x - y)(y + 3x) - 6x(x - 5y)$

$24x^2 + 25xy - 5y^2$

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

73. Simplify the following: $\dfrac{18x^2}{3x}$

6x

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

74. Simplify the following: $\dfrac{6a^2b}{-2ab^2}$

$-3\dfrac{a}{b}$

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

75. Simplify the following: $\dfrac{x^2y - xy^2}{xy}$

x - y

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

76. Simplify the following: $\dfrac{-4x + 10x^2 - 6x^3}{-0.5x}$

8 - 20x + $12x^2$

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

77. Simplify the following: $\dfrac{12x^3 - 24x^2 + 36x}{48x}$

$\dfrac{x^2 - 2x + 3}{4}$

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

78. Simplify the following: $\dfrac{32a^2b - 8ab + 14ab^2}{2ab}$

16a - 4 + 7b

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

79. Simplify the following: $\dfrac{4a^2b^3 - 6a^3b^2}{2ab^2}$

$2ab - 3a^2$

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

80. Simplify the following: $\dfrac{120(1+i)^2 + 180(1+i)^3}{360(1+i)}$

$$\frac{2(1+i) + 3(1+i)^2}{6}$$

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

81. Simplify the following expression and collect the like terms:

$$\frac{x}{2} - x^2 + \frac{4}{5} - 0.2x^2 - \frac{4}{5}x + \frac{1}{2}$$

$-1.2x^2 - 0.3x + 1.3$

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

82. Simplify the following expression and collect the like terms: $\frac{2x+9}{4} - 1.2(x-1)$

-0.7x + 3.45

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

83. Simplify the following expression and collect the like terms: $\frac{2x}{1.045} - \frac{2.016x}{3} + \frac{x}{2}$

1.7419x

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

84. Simplify the following expression and collect the like terms:
$\frac{8x}{0.5} + \frac{5.5x}{11} + 0.5(4.6x - 17)$

18.8x - 8.5

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

85. Simplify the following expression and collect the like terms. Maintain five-figure accuracy.

$$y\left(1-0.125\times\frac{213}{365}\right)+\frac{2y}{1+0.125\times\frac{88}{365}}$$

2.8685y

Difficulty: Hard
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

86. Simplify the following expression and collect the like terms. Maintain five-figure accuracy.

$$\frac{P}{1+0.095\times\frac{5}{12}}+2P\left(1+0.095\times\frac{171}{365}\right)$$

3.0509P

Difficulty: Hard
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

87. Simplify the following expression and collect the like terms. Maintain five-figure accuracy.

$$\frac{h}{(1+0.055)^2}-3h(1+0.055)^3$$

-2.6243h

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

88. Simplify the following expression and collect the like terms. Maintain five-figure accuracy. $k(1 + 0.04)^2 + \frac{2k}{(1 + 0.04)^2}$

2.9307k

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

89. Evaluate the following expression for the given values of the variables: $(1 + i)^m - 1$ for i = 0.0225, m = 4

0.093083

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

90. Evaluate the following expression for the given values of the variables and calculate the result accurate to the nearest cent: $R\left[\frac{(1 + i)^n - 1}{i}\right]$ for R = $550, i = 0.085, n = 3

$1794.22

Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

91. Evaluate the following expression for the given values of the variables and calculate the result accurate to the nearest cent: $R\left[\frac{(1+i)^n - 1}{i}\right](1+i)$ for R= $910, i = 0.1038129, n = 4

$4687.97

Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

92. Evaluate the following expression for the given values of the variables and calculate the result accurate to the nearest cent: $\frac{R}{i}\left[1 - \frac{1}{(1+i)^n}\right]$ for R = $630, i = 0.115, n = 2

$1071.77

Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

93. Evaluate the following expression for the given values of the variables and calculate the result accurate to the nearest cent: $P(1+rt_1) + \frac{S}{1+rt_2}$ for $P = \$470, S = \$390, r = 0.075, t_1 = \frac{104}{365}, t_2 = \frac{73}{365}$

$864.28

Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

94. Simplify the following: $a^2 \times a^3$

a^5

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

95. Simplify the following: $(x^6)(x^{-4})$

x^2

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

96. Simplify the following: $b^{10} \div b^6$

b^4

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

97. Simplify the following: $h^7 \div h^{-4}$

h^{11}

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

98. Simplify the following: $(1 + i)^4 \times (1 + i)^9$

$(1 + i)^{13}$

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

99. Simplify the following: $(1 + i) \times (1 + i)^n$

$(1 + i)^{n + 1}$

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

100. Simplify the following: $(x^4)^7$

x^{28}

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

101. Simplify the following: $(y^3)^3$

y^9

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

102. Simplify the following: $(t^6)^{1/3}$

t^2

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

103. Simplify the following: $(n^{0.5})^8$

n^4

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

104. Simplify the following: $\dfrac{(x^5)(x^6)}{x^9}$

x^2

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

105. Simplify the following: $\dfrac{(x^5)^6}{x^9}$

x^{21}

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

106. Simplify the following: $[2(1 + i)]^2$

$4(1 + i)^2$

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

107. Simplify the following: $\left(\frac{1+i}{3i}\right)^3$

$$\frac{(1+i)^3}{27i^3}$$

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

108. Simplify the following: $\frac{4r^5t^6}{(2r^2t)^3}$

$$\frac{t^3}{2r}$$

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

109. Simplify the following: $\dfrac{(-r^3)(2r)^4}{(2r^{-2})^2}$

$-4r^{11}$

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

110. Evaluate the following expression: $8^{4/3}$

16

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

111. Evaluate the following expression: $\left(-27^{2/3}\right)$

-9

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

112. Evaluate the following expression to six-figure accuracy: $7^{3/2}$

18.5203

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

113. Evaluate the following expression to six-figure accuracy: $5^{-3/4}$

0.299070

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

114. Evaluate the following expression: $(0.001)^{-2}$

1,000,000

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

115. Evaluate the following expression to six-figure accuracy: $0.893^{-1/2}$

1.05822

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

116. Evaluate the following expression to six-figure accuracy: $(1.0085)^5(1.0085)^3$

1.07006

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

117. Evaluate the following expression to five-figure accuracy: $(1.001)^4(1.075)^3$

1.24727

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

118. Evaluate the following expression to six-figure accuracy: $(1.005)^3(1.005)^{-6}$

0.985149

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

119. Evaluate the following expression to six-figure accuracy: $\sqrt[3]{1.03}$

1.00990

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

120. Evaluate the following expression to six-figure accuracy: $\sqrt[6]{1.05}$

1.00816

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

121. Evaluate the following expression: $(4^4)(3^{-3})\left(-\frac{3}{4}\right)^3$

-4

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

122. Evaluate the following expression to six-figure accuracy: $\left[\left(-\frac{3}{4}\right)^2\right]^{-2}$

3.16049

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

123. Evaluate the following expression to six-figure accuracy: $\left(\frac{2}{3}\right)^3\left(-\frac{3}{2}\right)^2\left(-\frac{3}{2}\right)^{-3}$

-0.197531

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

124. Evaluate the following expression to six-figure accuracy: $\left(-\frac{2}{3}\right)^3 \div \left(\frac{3}{2}\right)^{-2}$

-0.666667

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

125. Evaluate the following expression to six-figure accuracy: $\frac{1.03^{16} - 1}{0.03}$

20.1569

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

126. Evaluate the following expression to six-figure accuracy: $\frac{(1.008\bar{3})^{30} - 1}{0.008\bar{3}}$

33.9235

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

127. Evaluate the following expression to six-figure accuracy: $\dfrac{1-1.0225^{-20}}{0.0225}$

15.9637

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

128. Evaluate the following expression to six-figure accuracy: $\dfrac{1-(1.00\bar{6})^{-32}}{0.00\bar{6}}$

28.7312

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

129. Evaluate the following expression to six-figure accuracy: $(1+0.0275)^{1/3}$

1.00908

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

130. Evaluate the following expression to six-figure accuracy: $(1+0.055)^{1/6}-1$

0.00896339

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

131. Solve the following equation: 10a + 10 = 12 + 9a

2

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

132. Solve the following equation: 29 - 4y = 2y - 7

6

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

133. Solve the following equation: 0.5(x - 3) = 20

43

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

134. Solve the following equation: $\frac{1}{3}(x-2)=4$

14

Difficulty: Easy
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

135. Solve the following equation: y = 192 + 0.04y

200

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

136. Solve the following equation: x - 0.025x = 341.25

350

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

137. Solve the following equation: 12x - 4(2x - 1) = 6(x + 1) - 3

0.5

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

138. Solve the following equation: 3y - 4 = 3(y + 6) - 2(y + 3)

8

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

139. Solve the following equation: 8 - 0.5(x + 3) = 0.25(x - 1)

9

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

140. Solve the following equation: 5(2 - c) = 10(2c - 4) - 6(3c + 1)

8

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

141. Solve the following equation: 3.1t + 145 = 10 + 7.6t

30

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

142. Solve the following equation: 1.25y - 20.5 = 0.5y - 11.5

12

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

143. Solve the following equation accurate to the cent: $\frac{x}{1.1^2} + 2x(1.1)^3 = \$1000$

$286.66

Difficulty: Medium
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

144. Solve the following equation accurate to the cent:

$$\frac{3x}{1.025^6} + x(1.025)^8 = \$2641.35$$

$694.13

Difficulty: Medium
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

145. Solve the following equation accurate to the cent:

$$\frac{2x}{1.03^7} + x + x(1.03^{10}) = \$1000 + \frac{\$2000}{1.03^4}$$

$699.47

Difficulty: Hard
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

146. Solve the following equation accurate to the cent:

$$x(1.05)^3 + \$1000 + \frac{x}{1.05^7} = \frac{\$5000}{1.05^2}$$

$1892.17

Difficulty: Hard
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

147. Solve the following equation accurate to the cent:

$$x\left(1 + 0.095 \times \frac{84}{365}\right) + \frac{2x}{\left(1 + 0.095 \times \frac{108}{365}\right)} = \$1160.20$$

$391.01

Difficulty: Hard
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

148. Solve the following equation accurate to the cent:

$$\frac{x}{1 + 0.115 \times \frac{78}{365}} + 3x\left(1 + 0.115 \times \frac{121}{365}\right) = \$1000\left(1 + 0.115 \times \frac{43}{365}\right)$$

$247.79

Difficulty: Hard
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

149. Use I = Prt to calculate *P*, if r = 0.05, I = $.625, t = 0.25

$500.00

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

150. Use $PV = \frac{PMT}{i}$ to calculate *i*, if PMT = $900, PV = $150,000

0.006

Difficulty: Easy
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

151. Use S = P(1 + rt) to calculate *P*, if r = 0.004, S = $3626, t = 9

$3500.00

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

152. Use N = L(1 - d) to calculate *L*, if N = $891, d = 0.10

$990.00

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

153. Use N = L(1 - d) to calculate *d*, if N = $410.85, L = $498

0.175

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

154. Use S = P(1 + rt) to calculate *t*, if r = 0.0025, S = $5100, P = $5000

8

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

155. Use NI = (CM)X - FC to calculate *CM*, if NI = $15,000, X = 5000, FC = $60,000

$15.00

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

156. Use NI = (CM)X - FC to calculate *X*, if NI = -$542.50, CM = $13.50, FC = $18,970

1365

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

157. Use $N = L(1 - d_1)(1 - d_2)(1 - d_3)$ to calculate L, if N = \$1468.80, $d_1 = 0.20$, $d_2 = 0.15$, $d_3 = 0.10$

\$2400.00

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

158. Use $N = L(1 - d_1)(1 - d_2)(1 - d_3)$ to calculate d_2, if N = \$70.29, L = \$99.99, $d_1 = 0.20$, $d_3 = 0.05$

0.075

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

159. Use $FV = PV(1 + i_1)(1 + i_2)(1 + i_3)$ to calculate i_1, if PV = \$1000, \$1094.83, $i_2 = 0.03$, $i_3 = 0.035$

0.027

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

160. Use $FV = PMT\left[\frac{(1+i)^n - 1}{i}\right]$ to calculate *PMT*, if FV = $1508.54, n = 4, i = 0.05

$350.00

Difficulty: Medium
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

161. Use $PV = PMT\left[\frac{1-(1+i)^{-n}}{i}\right]$ to calculate *PMT*, if PV = $6595.20, n = 20, i = 0.06

$575.00

Difficulty: Medium
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

162. Rearrange I = Prt to isolate *t* on the left side.

$$t = \frac{I}{Pr}$$

Difficulty: Easy
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

163. Rearrange $PV = \frac{PMT}{i}$ to isolate *i* on the left side.

$$i = \frac{PMT}{PV}$$

Difficulty: Easy
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

164. Rearrange N = L(1 - d) to isolate *d* on the left side.

$$d = 1 - \frac{N}{L}$$

Difficulty: Easy
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

165. Rearrange NI = (CM)X - FC to isolate *CM* on the left side.

$$CM = \frac{NI + FC}{X}$$

Difficulty: Easy
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

166. Rearrange NI = (CM)X - FC to isolate *X* on the left side.

$$X = \frac{NI + FC}{CM}$$

Difficulty: Easy
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

167. Rearrange S = P(1 + rt) to isolate *r* on the left side.

$$r = \frac{S - P}{Pt}$$

Difficulty: Easy
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

168. Rearrange S = P(1 + rt) to isolate *t* on the left side.

$$t = \frac{S - P}{Pr}$$

Difficulty: Easy
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

169. Rearrange $N = L(1 - d_1)(1 - d_2)(1 - d_3)$ to isolate d_1 on the left side.

$$d_1 = 1 - \frac{N}{L(1 - d_2)(1 - d_3)}$$

Difficulty: Easy
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

170. Rearrange $N = L(1 - d_1)(1 - d_2)(1 - d_3)$ to isolate d_3 on the left side.

$$d_3 = 1 - \frac{N}{L(1 - d_1)(1 - d_2)}$$

Difficulty: Easy
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

171. Rearrange $FV = PV(1 + i)^n$ to isolate PV on the left side.

$$PV = \frac{FV}{(1 + i)^n}$$

Difficulty: Easy
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

172. Use $FV = PV(1 + i)^n$ to calculate i, if PV = $2000, FV = $9321.91, n = 20

0.08

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

173. Use $FV = PV(1 + i)^{-n}$ to calculate *i*, if PV = $5167.20, FV = $10,000, n = 15

0.045

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

174. Rearrange $FV = PV(1 + i)^{n}$ to isolate *i* on the left side.

$$i = \left(\frac{FV}{PV}\right)^{1/n} - 1$$

Difficulty: Medium
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

175. A web site had 2/7 more hits last month than in the same month of the preceding year. If there were 2655 hits last month, how many were there 1 year earlier?

2065

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

176. A newspaper agency had 1/3 more subscribers for one month due to a marketing promotion. If there were 2,400 subscribers at the end of the promotion (including all new subscribers), how many more subscribers were added because of the marketing promotion?

600

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-05 Substitution

177. The retail price of a pair of skis consists of the wholesale cost to the retailer plus the retailer's markup. If skis retailing for $712 are marked up by 60% of the wholesale cost, what is that wholesale cost?

$445.00

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

178. The price tags in Annie's Flower Shop include the 13% Harmonized Sales Tax (HST). How much HST will she report for a plant sold at $39.55?

$4.55

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

179. The Furniture Store offered a couch for sale during a "Pay no Tax" promotion. If the list price was $975 and the total tax rate was 12%, how much was the price of the couch?

$870.54

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-05 Substitution

180. A stockbroker's commission on a transaction is 2.5% of the first $5000 of the transaction amount and 1.5% of the remainder. What was the amount of a transaction that generated a total commission of $227?

$11,800

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

181. A caterer has the following price structure for banquets. The first 20 meals are charged the basic price per meal. The next 20 meals are discounted by $2 each and all additional meals are each reduced by $3. If the total cost for 73 meals comes to $1686, what is the basic price per meal?

$25.00

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

182. Econocar offers two plans for one-week rentals of a compact car. A rate of $295 per week includes the first 1000 kilometres. Extra distance costs 15 cents per kilometre. A weekly rate of $389 allows unlimited driving. Rounded to the nearest kilometre, beyond what driving distance is the unlimited driving plan cheaper?

1627 km

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

183. You have a choice of leasing a vehicle or renting a vehicle. The lease rate is $500 per month and $.20 per kilometer over 10,000 kms. The rental vehicle is $700 per month with a mileage charge of $.10 per kilometer over 20,000 kms. If you plan on driving the vehicle for 50,000 kms., what will be the difference in price between the lease and the rental.

$2,600

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-05 Substitution

184. Alicia pays 38% income tax on any additional earnings. She has an opportunity to work overtime at 1.5 times her base wage of $23.50 per hour. Rounded to the nearest quarter hour, how much overtime must she work to earn enough money (after tax) to buy a canoe that costs $2750 including sales taxes?

125 ¾ hours

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

185. Bob pays a dividend tax of 20% on Canadian investments. If Bob purchases 1,000 shares that pay a 4% annual dividend, how much would each share have to be worth to net $10,000?

$312.50

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

186. When making a salad dressing, you need twice as much vinegar as oil and four times as much sugar as oil. If you need 2.1 cups of salad dressing, how many cups of sugar do you require?

1.2

Accessibility: Keyboard Navigation
Difficulty: Hard
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-05 Substitution

187. Classic Homes has found from experience that there should be 40% as many two-bedroom homes as three-bedroom homes in a subdivision, and twice as many two-bedroom homes as four-bedroom homes. How many homes of each type should Classic build in a new 96-home subdivision?

24 two-bedroom; 60 three-bedroom; 12 four-bedroom

Accessibility: Keyboard Navigation
Difficulty: Hard
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

188. Broadway Mazda usually spends half as much on radio advertising as on newspaper advertising, and 60% as much on television advertising as on radio advertising. If next year's total advertising budget is $160,000, how much (rounded to the nearest dollar) should be allocated to each form of advertising?

Radio: $44,444; TV: $26,667; Newspaper: $88,889

Accessibility: Keyboard Navigation
Difficulty: Hard
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

189. A city's commercial construction by-laws require five parking spaces for every 100 square metres of retail rental space in a shopping centre. Four percent of the parking spaces must be large spaces for the physically handicapped. Of the remainder, there must be 40% more regular-size spaces than "small-car" spaces. How many parking spaces of each type are required for a 27,500 square metre shopping centre?

55 handicapped; 550 small-car; 770 regular

Accessibility: Keyboard Navigation
Difficulty: Hard
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

190. Erin has invested in both an equity mutual fund and a bond mutual fund. Her financial advisor told her that her overall portfolio rose in value by 1.1% last year. Erin noted in the newspaper that the equity fund lost 3.3% last year while the bond fund rose 7.7%. What percentage of her portfolio was in the equity fund at the beginning of the year?

60%

Accessibility: Keyboard Navigation
Difficulty: Hard
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

191. Steel is an alloy of iron and nickel. A steel recycling company has two piles of scrap steel. Pile A contains steel with 5.25% nickel content. Pile B contains steel with 2.84% nickel. The company has an order for 32.5 tonnes of steel containing 4.15% nickel. How much scrap steel should be taken from each pile for reprocessing?

17.67 tonnes from A; 14.83 tonnes from B

Accessibility: Keyboard Navigation
Difficulty: Hard
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

192. The board of directors of Meditronics Inc. has designated 100,000 stock options for distribution to employees and management of the company. Each of three executives is to receive 2000 more options than each of eight scientists and engineers. Each scientist and engineer is to receive 50% more options than each of 14 technicians. How many options will a person in each position receive?

Technician: 3082; Scientist and Engineer: 4623; Executive: 6623

Accessibility: Keyboard Navigation
Difficulty: Hard
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

193. You can pick and choose ingredients at a local food mart. Vegetable ingredients are $2.00/kg and meat ingredients are $1.00/100 grams. You wish to purchase a stir fry for a party that will weigh 4 kgs. You wish to use three times as much vegetables as meat. How much will the meat portion and vegetable portion cost you?

$10 meat
$6 vegetable

Accessibility: Keyboard Navigation
Difficulty: Hard
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-05 Substitution

194. Dash Canada offers two long-distance telephone plans. Plan X costs 6.5 cents per minute for calls between 8 a.m. and 6 p.m. weekdays (business hours) and 4.5 cents per minute at other times. Plan Y costs 5.3 cents per minute any time. Above what percentage of business-hour usage will Plan Y be cheaper?

40%

Accessibility: Keyboard Navigation
Difficulty: Hard
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

195. Quality Grocer makes its own bulk "trail mix" by mixing raisins and peanuts. The wholesale cost of raisins is $3.75 per kg and the cost of peanuts is $2.89 per kg. To the nearest 0.1 kg, what amounts of peanuts and raisins should be mixed to produce 50 kg of trail mix with an effective wholesale cost of $3.20 per kg?

Peanuts: 32.0 kg; Raisins 18.0 kg

Accessibility: Keyboard Navigation
Difficulty: Hard
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

196. A firm received a bill from its accountant for $3310, representing a combined total of 41 "billable" hours for both the Certified General Accountant (CG A) and her accounting technician, for conducting the firm's audit. If the CGA charges her time at $120 per hour and the technician's time at $50 per hour, how many hours did each work on the audit?

CGA: 18 hours; technician: 23 hours

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

197. A lawyer wishes to bring on two new partners. The current partner has a net worth in the company of $500,000. Partner B wishes to bring in 30% of the original partners' capital and partner C will bring 1/3 of partner B's amount. If all partners wish to have a total balance of $800,000, how much extra will need to be raised to reach the goal of $800,000?

$100,000

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

198. Joan, Stella, and Sue have agreed to form a partnership. For the original capital investment of $32,760, Sue agrees to contribute 20% more than Joan, and Joan agrees to contribute 20% more than Stella. How much will each contribute?

Stella: $9000; Joan: $10,800; Sue: $12,960

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

199. The annual net income of the SGR partnership is to be distributed so that Sven receives 30% less than George, and Robert receives 25% more than George. If the past year's net income was $88,880, what amount should be allocated to each?

George: $30,128.81; Robert: $37,661.02; Sven: $21,090.17

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

200. It takes 20 minutes of machine time to manufacture Product X and 30 minutes of machine time to manufacture Product Y. If the machine operated 47 hours last week to produce a combined total of 120 units of the two products, how many units of Y were manufactured?

42

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

201. The tickets for a hockey game cost $19.00 for the blue section and $25.50 for the red section. If 4460 tickets were sold for a total of $93,450, how many seats were sold in each section?

Blue: 3120; Red: 1340

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

202. The annual dues for the Southern Pines Golf Club are $2140 for regular members and $856 for student members. If the total revenue from the dues of 583 members for the past year was $942,028, how many members did the club have in each category?

238 student members and 345 regular members

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

203. The Hungry Heifer diner offers an all-you-can-eat buffet at $12.95 per adult and $8.95 per child. On a particular day, the diner had total buffet revenue of $3304.70 from 266 customers. How many of the customers were children?

35

Accessibility: Keyboard Navigation
Difficulty: Hard
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

204. Tina drove from Calgary to Vancouver, a distance of 1000 km, in 12.3 hours. She drove at 100 km/h on the "open road," but slowed to 50 km/h on urban and curving roads. What distance did she drive at each speed? (Hint: Travelling time at a particular speed = Distance/Speed)

230 km at 50 km/h; 770 km at 100 km/h

Accessibility: Keyboard Navigation
Difficulty: Hard
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

205. Product X requires 30 minutes of machining on a lathe, and product Y requires 45 minutes of machining. If the lathe was operated for 60.5 hours last week for machining a combined total of 93 units of Products X and Y, how many units of each product were produced?

37 units of X and 56 units of Y

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

206. A convenience store sells canned soft drinks at $4.35 for a six-pack or 90 cents for a single can. If revenue from the sale of 225 cans of soft drinks on a weekend was $178.35, how many six-packs and how many single cans were sold?

23 six-packs and 87 single cans

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

207. Mr. Parker structured his will so that each of his four children will receive half as much from the proceeds of his estate as his wife, and each of 13 grandchildren will receive one-third as much as each child. After his death, $759,000 remains after expenses and taxes for distribution among his heirs. How much will each child and grandchild receive?

Each child: $73,451.62 (+/- $0.01); Each grandchild: $24,483.87 (+/- $0.01)

Accessibility: Keyboard Navigation
Difficulty: Hard
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

208. To coordinate production in a three-stage manufacturing process, Stage B must be assigned 60% more workers than Stage A. Stage C requires three-quarters as many workers as Stage B. How should the foreman allocate 114 workers among the three stages?

Stage A: 30; Stage B: 48; Stage C: 36

Accessibility: Keyboard Navigation
Difficulty: Hard
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

209. Fred has centralized the purchasing and recordkeeping functions for his three pharmacies in a single office. The annual costs of the office are allocated to the three stores. The Hillside store is charged $1000 less than twice the charge to the Barnett store. The Westside store is charged $2000 more than the Hillside store. What is the charge to the Westside store if the cost of operating the central office for a year is $27,600?

$12,040

Accessibility: Keyboard Navigation
Difficulty: Hard
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

210. $100,000 is to be distributed under a firm's profit-sharing plan. Each of 3 managers is to receive 20% more than each of 26 production workers. How much will each manager and production worker receive?

Each worker: $3378.38; Each manager: $4054.05

Accessibility: Keyboard Navigation
Difficulty: Hard
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

211. Simplify and collect the like terms: 4(3a + 2 b)(2b - a) - 5a(2a - b)

$-22a^2 + 21ab + 16b^2$

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

212. Simplify and collect the like terms: $\frac{9y-7}{3} - 2.3(y-2)$

$0.7y + 2.2\overline{6}$

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

213. Simplify and collect the like terms:

$$P\left(1+0.095\times\frac{135}{365}\right)+\frac{2P}{\left(1+0.095\times\frac{75}{365}\right)}$$

2.996843P

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

214. Simplify and collect the like terms: 6(4y - 3)(2 - 3y) - 3(5 - y)(1 + 4y)

$-60y^2 + 45y - 51$

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

215. Simplify and collect the like terms: $\frac{5b-4}{4}-\frac{25-b}{1.25}+\frac{7}{8}b$

2.925b - 21

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

216. Simplify and collect the like terms:

$$\frac{x}{1+0.085\times\frac{63}{365}}+2x\left(1+0.085\times\frac{151}{365}\right)$$

3.05587x

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

217. Simplify: $\frac{96nm^2-72n^2m^2}{48n^2m}$

$$2\frac{m}{n}-1.5m$$

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

218. Evaluate the following expression for the given values of the variables:

$P(1+i)^n+\frac{S}{1+rt}$ for

$P=\$2500, i=0.1025, n=2, S=\$1500, r=0.09, t=\frac{93}{365}$

$4505.14

Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

219. Evaluate the following expression for the given values of the variables: $L(1 - d_1)(1 - d_2)(1 - d_3)$ for L = \$340, $d_1 = 0.15$, $d_2 = 0.08$, $d_3 = 0.05$

\$252.59

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

220. Evaluate the following expression for the given values of the variables:

$$\frac{R}{i}\left[1 - \frac{1}{(1+i)^n}\right]$$ for R = \$575, i = 0.085, n = 3

\$1468.56

Difficulty: Easy
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

221. Simplify: $\dfrac{(-3x^2)^3(2x^{-2})}{6x^5}$

$$-\frac{9}{x}$$

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

222. Simplify: $\dfrac{(-2a^3)^{-2}(4b^4)^{3/2}}{(-2b^3)(0.5a)^3}$

$-\dfrac{8b^3}{a^9}$

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

223. Simplify: $\left(-\dfrac{2x^2}{3}\right)^{-2}\left(\dfrac{5^2}{6x^3}\right)\left(-\dfrac{15}{x^5}\right)^{-1}$

$-\dfrac{5}{8x^2}$

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

224. Evaluate to six-figure accuracy: $(1.0075)^{24}$

1.19641

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

225. Evaluate to six-figure accuracy: $(1.05)^{1/6} - 1$

0.00816485

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

226. Evaluate to six-figure accuracy: $\dfrac{(1 + 0.0075)^{36} - 1}{0.0075}$

41.1527

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

227. Evaluate to six-figure accuracy: $\dfrac{1 - (1 + 0.045)^{-12}}{0.045}$

9.11858

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

228. Evaluate to six-figure accuracy: $\dfrac{(1.00\bar{6})^{240} - 1}{0.00\bar{6}}$

589.020

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

229. Evaluate to six-figure accuracy: $(1 + 0.025)^{1/3} - 1$

0.00826484

Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

230. Solve the following equation accurate to the cent:

$$\frac{2x}{1 + 0.13 \times \frac{92}{365}} + x\left(1 + 0.13 \times \frac{59}{365}\right) = \$831$$

$280.97

Difficulty: Medium
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

231. Solve the following equation accurate to the cent:

$$3x(1.03^5) + \frac{x}{1.03^3} + x = \frac{\$2500}{1.03^2}$$

$436.96

Difficulty: Medium
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

232. Solve the following equation accurate to the cent: $\frac{x}{1.08^3} + \frac{x}{2}(1.08)^4 = \$850$

$576.63

Difficulty: Medium
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

233. Solve the following equation accurate to the cent:

$$2x\left(1 + 0.085 \times \frac{77}{365}\right) + \frac{x}{\left(1 + 0.085 \times \frac{132}{365}\right)} = \$1565.70$$

$520.85

Difficulty: Medium
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

234. Use $N = L(1 - d_1)(1 - d_2)(1 - d_3)$ to calculate d_2, if N = \$324.30, L = \$498, $d_1 = 0.20$, $d_3 = 0.075$

0.12

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

235. Use $V_f = V_i(1 + c_1)(1 + c_2)(1 + c_3)$ to calculate c_2, if $V_f = \$586.64$, $V_i = \$500$, $c_1 = 0.17$, $c_3 = 0.09$

-0.08

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

236. Rearrange $FV = PV(1 + i_1)(1 + i_2)$ to isolate i_1 on the left side.

$$i_1 = \frac{FV}{PV(1 + i_2)} - 1$$

Difficulty: Easy
Learning Objective: 02-03 Rearrange a formula or equation to isolate a particular variable.
Topic: 02-09 Manipulating Equations and Formulas

237. The annual net income of the Todd Bros. partnership is distributed so that Ken receives $15,000 more than 80% of Hugh's share. How should a net income of $98,430 be divided between the partners?

Hugh: $46,350; Ken: $52,080

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

238. The profits from a partnership are to be distributed so that Grace receives 20% more than Kajsa, and Mary Anne receives five-eighths as much as Grace. How much should each receive from a total distribution of $36,000?

Kajsa: $12,203.39; Grace: $14,644.07; Mary Anne: $9152.54

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

239. Through a calculation (on Canadian Individual Tax Returns) known as the " Old Age Security clawback", an individual receiving Old Age Security (OAS) benefits must repay an increasing portion of these benefits to the federal government as the individual's net income rises beyond a certain threshold. If the OAS clawback is 15% of net income exceeding $68,000, at what amount of net income must a taxpayer repay all $6300 OAS benefits received in the year?

$110,000

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

240. During a one-day special, a grocery store sells cucumbers at 98 cents each or four for the price of three. At the end of the day, the store's computer reports that revenue from the sale of 541 cucumbers was $418.46. How many cucumbers were sold on the four-for-three promotion?

456

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

241. Simplify: $\left(\frac{3a^3b^2}{a-b}\right)^4$

$$\frac{81a^{12}b^8}{(a-b)^4}$$

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

242. Simplify: $\left(\frac{3}{2x^2}\right)^2\left(\frac{6x^3}{5^2}\right)\left(-\frac{x}{5}\right)^{-1}$

$$-\frac{27}{10x^2}$$

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

243. Simplify: $\frac{(-2y)^3(x^4)^{-2}}{(x^{-2})^2(4y)^2}$

$$-\frac{y}{2x^4}$$

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

244. Simplify: $\dfrac{\left[\left(x^{1/3}\right)\left(x^{2/3}\right)x\right]^{3/2}}{(8x^3)^{2/3}}$

$\dfrac{x}{4}$

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

245. A wholesaler sells to retailers at a 27% discount from the suggested retail price. What is the suggested retail price of an item that costs the retailer $100?

$136.99

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

246. Tom's wholesale company sells t-shirts with a MSRP of $25.99. If they sell these t-shirts with a discount of 47%, what is the profit to the retailer?

$13.77

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

247. Simplify and collect the like terms: 2a - (- a) + 4a - 5a

2a

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

248. Simplify and collect the like terms: -4x - [-3x + 2(x - 6)]

-3x + 12

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

249. Evaluate the following expression for the given values of the variables:

$R\left[\frac{(1+i)^n - 1}{i}\right]$ for R = $1200, i = 0.02, n = 6

$7569.75

Difficulty: Easy
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

250. Simplify: $\frac{(2x^4y^2z^3)^2}{4xyz^2}$

$x^7y^3z^4$

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

251. Simplify: $x^7 \div x^{-4} \div x^3$

x^8

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-06 Rules and Properties of Exponents

252. Evaluate the following to six-figure accuracy: $\dfrac{1-(1+0.015)^{-18}}{0.015}$

15.6726

Difficulty: Medium
Learning Objective: 02-01 Simplify algebraic expressions by extracting common factors and applying rules of exponents.
Topic: 02-01 Operations with Algebraic Expressions

253. Solve the following equation: $3(x - 6) + 5x - 2(2x - 3) = 0$

3

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

254. Solve the following equation: $9x + 10 = -3x + 34$

2

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

255. Solve the following equation: $2y - 4 = 4y + 6$

-5

Accessibility: Keyboard Navigation
Difficulty: Easy
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

256. Solve the following equation: $1.5a + 3(4a - 6) = a(1.5)^2$

1.6

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

257. Solve the following equation accurate to the cent:

$$\frac{x}{(1.02)^6} + 3x(1.02)^4 - \$1000 = \frac{\$4000}{(1.02)^3}$$

$1153.32

Difficulty: Hard
Learning Objective: 02-02 Solve a linear equation in one variable.
Topic: 02-08 Solving a Linear Equation in One Unknown

258. Surinder works in a retail store in Square One in Mississauga. She earns a base salary of $320 per week, and a commission of 3% on sales over her quota of $5000. If Surinder earned $515 last week, what was the value of her sales?

$11,500

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

259. Tickets for the end of semester dance sold for $10 if purchased in advance, and $15 if purchased at the door. If 392 tickets were sold for a total of $4280, how many tickets were sold at the door?

72

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

260. Omar earns $17.00 per hour for a forty-hour week. His overtime rate is 1½ times any hours exceeding forty in a week. If Omar earned $807.50 last week, how many overtime hours did he work?

5

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

261. Mrs. Singh invested $20,000 in two investments paying 2% and 3% respectively. She earned $460 interest for the year. How much did Mrs. Singh invest at 3%?

$6000

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

262. Mr. Johnson invested $10,000 and earned 7% in year one, -5% in year two and 2% in year three. How much money did he earn in year three in interest?

$203.30

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

263. Kristina is in charge of billing for a company that does computer training. She is preparing an invoice for $1340 for 32 hours of work, which includes training at $70 per hour and preparation of a manual at $25 per hour. How many hours of training are included in the invoice?

12

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems

264. Sunrise Foods is billing a customer for 120 drinks for a meeting. They supplied coffee at $2 per cup and tea at $1 per cup. If the total bill was $200, how many cups of coffee were sold?

80

Accessibility: Keyboard Navigation
Difficulty: Medium
Learning Objective: 02-04 Solve "word problems" that lead to a linear equation in one unknown.
Topic: 02-10 Solving Word Problems