***College Algebra, 5e* (Young)**

**Chapter 1 Equations and Inequalities**

1.2 Applications Involving Linear Equations

1) Juan uses a 10% off total purchase coupon at his local supermarket. His checkout price before tax is $103.75. How much would he have paid without the coupon?

A) $126.81

B) $115.28

C) $125.28

D) $115.38

Answer: B

Diff: 2 Var: 1

Chapter/Section: Ch 01, Sec 02

Learning Objective: Solve application problems involving common formulas.

2) Lucas, Rebecca, and Brandon order a large pizza. They decide to split the cost according to how much they will eat. Brandon pays $2.32, Rebecca eats 1/6 of the pizza, and Lucas eats 4/7 of the pizza. How much did the pizza cost?

A) $8.86

B) $0.61

C) $4.06

D) $1.58

Answer: A

Diff: 2 Var: 1

Chapter/Section: Ch 01, Sec 02

Learning Objective: Solve application problems involving common formulas.

3) A college bookstore marks up the price it pays the publisher for a book by 25%. If the selling price of a book is $82, how much did the bookstore pay for the book?

A) $102.50

B) $20.50

C) $328.00

D) $65.60

Answer: D

Diff: 2 Var: 1

Chapter/Section: Ch 01, Sec 02

Learning Objective: Solve application problems involving common formulas.

4) A builder of tract homes reduced the price of a model by 15%. If the new price is $167,170, what was its original price?

A) $167,170.15

B) $196,670.59

C) $142,094.50

D) $192,245.50

Answer: B

Diff: 3 Var: 1

Chapter/Section: Ch 01, Sec 02

Learning Objective: Solve application problems involving common formulas.

5) A company has a total of $11,750 allocated for monthly costs. Fixed costs are $6650 a month and variable costs are $13 per unit. How many units can be manufactured a month?

A) 904

B) 512

C) 392

D) 1415

Answer: C

Diff: 3 Var: 1

Chapter/Section: Ch 01, Sec 02

Learning Objective: Solve application problems involving common formulas.

6) Lacie decides to start a small business making monogrammed towels. She can set aside $4670 for monthly costs. Fixed costs are $1800 per month and variable costs are $4 per set of towels. How many sets of towels can she afford to make per month?

A) 1617

B) 1167

C) 450

D) 717

Answer: D

Diff: 3 Var: 1

Chapter/Section: Ch 01, Sec 02

Learning Objective: Solve application problems involving common formulas.

7) Find the perimeter of a triangle if one side is 35 feet, another side is 1/4 of the perimeter, and the third side is 1/3 of the perimeter. Round your answer to 2 decimal places.

A) 35.58 feet

B) 84.00 feet

C) 20.42 feet

D) 105 feet

Answer: B

Diff: 2 Var: 1

Chapter/Section: Ch 01, Sec 02

Learning Objective: Solve geometry problems.

8) The length of a rectangle is 9 more feet than 4 times its width. The perimeter of the rectangle is 358 feet. What is the length of the rectangle?

A) 145 feet

B) 94 feet

C) 143 feet

D) 90 feet

Answer: A

Diff: 2 Var: 1

Chapter/Section: Ch 01, Sec 02

Learning Objective: Solve geometry problems.

9) William has $14,550 to invest and decides to put some in a CD that earns 2.25% interest per year and the rest in a low risk stock that earns 3.4%. How much did he invest to earn $395.225 interest in the first year?

A) $6995.13 at 2.25% and $7554.87 at 3.4%

B) $5900 at 2.25% and $8650 at 3.4%

C) $8650 at 2.25% and $5900 at 3.4%

D) $7554.87 at 2.25% and $6995.13 at 3.4%

Answer: C

Diff: 3 Var: 1

Chapter/Section: Ch 01, Sec 02

Learning Objective: Solve interest problems.

10) BJ bought ham and cheese at the deli. The ham costs $6.50 per pound and the cheese costs $4.90 per pound. In total, BJ bought 7.6 pounds and the price was $40.6. How many pounds of each did BJ buy?

A) 2.10 pounds of ham and 5.5 pounds of cheese

B) 5.5 pounds of ham and 2.10 pounds of cheese

C) 3.56 pounds of ham and 3.56 pounds of cheese

D) 6.83 pounds of ham and 0.77 pounds of cheese

Answer: A

Diff: 3 Var: 1

Chapter/Section: Ch 01, Sec 02

Learning Objective: Solve application problems involving common formulas.

11) A motorboat can maintain a constant speed of 12 miles per hour relative to the water. The boat makes a trip upstream in 42 minutes and the return trip takes 21 minutes. What is the speed of the current?

A) 0.3 mph

B) 12 mph

C) 4.0 mph

D) 24 mph

Answer: C

Diff: 3 Var: 1

Chapter/Section: Ch 01, Sec 02

Learning Objective: Solve distance-rate-time problems.

12) Lee can mow a lawn in 10 minutes. It takes Ito 60 minutes to mow a lawn of the same size. How long would it take them to mow the lawn if they work together?

A) 35.0 minutes

B) 50 minutes

C) 8.6 minutes

D) 70 minutes

Answer: C

Diff: 2 Var: 1

Chapter/Section: Ch 01, Sec 02

Learning Objective: Solve application problems involving common formulas.

13) Aleshia's test scores are 76, 83, 95, and 89. The final will count as two tests. What score does Aleshia need on the final to have an average score of 80?

A) 28.5

B) 68.5

C) 57

D) 80

Answer: B

Diff: 2 Var: 1

Chapter/Section: Ch 01, Sec 02

Learning Objective: Solve application problems involving common formulas.

14) A college bookstore marks up the price it pays the publisher for a book by 23%. If the selling price of the book is $107.01, how much did the bookstore pay for the book?

Answer: $87

Diff: 2 Var: 1

Chapter/Section: Ch 01, Sec 02

Learning Objective: Solve application problems involving common formulas.

15) The length of a rectangle is 4 feet more than 4 times its width. The perimeter of the rectangle is 148 feet. What is the length of the rectangle?

Answer: 60 feet

Diff: 2 Var: 1

Chapter/Section: Ch 01, Sec 02

Learning Objective: Solve geometry problems.

16) The Parsons budgeted $147.00 to landscape their yard with trees and shrubs. Trees each cost $16.50 and shrubs each cost $9.50. Combined they planted a total of 14 trees and shrubs. How many of each did they plant in their yard?

Answer: 2 trees, and 12 shrubs

Diff: 3 Var: 1

Chapter/Section: Ch 01, Sec 02

Learning Objective: Solve mixture problems.

17) For a certain experiment, a student requires 20 mL of a solution that is 11% HCl (hydrochloric acid). The store-room has only solutions that are 8% HCl and 12% HCl. How many milliliters of each available solution should be mixed to get 20 mL of 11% HCl?

Answer: 5 mL of 8% HCl and 15 mL of 12% HCl solutions

Diff: 2 Var: 1

Chapter/Section: Ch 01, Sec 02

Learning Objective: Solve mixture problems.

18) An investor has $16,300 to split between two investments. The first investment earns a return of 4.2% annually and the second investment earns a return of 3.6% annually. If the total gain on the investment in the first year is $601.20, how much was put into each investment? (Assume the full $16,300 was invested.)

Answer: Investment 1: $2,400

Investment 2: $13,900

Diff: 2 Var: 1

Chapter/Section: Ch 01, Sec 02

Learning Objective: Solve mixture problems.

19) A jogger and a walker travel the same distance. The jogger finishes in 44 minutes. The walker takes 77 minutes. How fast is each exerciser moving if the jogger runs 3 miles per hour faster than the walker?

Answer: Jogger 7 mph

Walker 4 mph

Diff: 2 Var: 1

Chapter/Section: Ch 01, Sec 02

Learning Objective: Solve distance-rate-time problems.

20) Find a number such that 22 less than (3/) with subscript (7) the number is (1/) with subscript (6) the number.

Answer: 84

Diff: 1 Var: 1

Chapter/Section: Ch 01, Sec 02

Learning Objective: Solve application problems involving common formulas.

21) Find two consecutive odd integers such that the sum of the integers is equal to 41 less than 5 times the larger integer.

Answer: 11 and 13

Diff: 1 Var: 1

Chapter/Section: Ch 01, Sec 02

Learning Objective: Solve application problems involving common formulas.

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