4.5 Modeling With Algebra Practice

Instructions: Find an equation to represent each problem and then solve!

1. A box of fruit has four more apples than oranges. Together there are 52 pieces of fruit. How many of each type of fruit are there?

2. Thu and Cleo are sharing the driving on a 520 mile trip. If Thu drives 60 miles more than Cleo, how far did each of them drive?

3. Aimee cut a string that was originally 126 centimeters long in to two pieces so that one piece is twice as long as the other. How long is each piece?

4. A full bucket of water weighs eight kilograms. If the water weighs five times as much as the empty bucket, how much does the water weigh?

5. The perimeter of a rectangle is 100 feet. If the length is five feet more than twice the width, find the length and width.

6. The perimeter of a rectangular city is 94 miles. If the length is one mile less than three times the width, find the length and width of the city.

7. Find three consecutive numbers whose sum is 138.

8. Find three consecutive even numbers whose sum is 468.

9. The perimeter of a triangle is 57. The first side is twice the length of the second side. The third side is seven more than the second side. What is the length of each side?

10. The perimeter of a triangle is 86 inches. The largest side is four inches less than twice the smallest side. The third side is 10 inches longer than the smallest side. What is the length of each side?

11. Thirty more student tickets than adult tickets were sold for the game. Student tickets cost $2, adult tickets cost $5, and $1460 was collected. How many of each kind of ticket were sold?

12. Fifty more "couples" tickets than "singles" tickets were sold for the dance. "Singles" tickets cost $10 and "couples" tickets cost $15. If $4000 was collected, how many of each kind of ticket was sold?

13. Helen has twice as many dimes as nickels and five more quarters than nickels. The value of her coins is $4.75. How many dimes does she have?

14. Ly has three more dimes than nickels and twice as many quarters as dimes. The value of his coins is $9.60. How many of each kind of coin does he have?

15. Enrique put his money in the credit union for one year. His money earned 8% simple interest and at the end of the year his account was worth $1350. How much was originally invested?

16. Juli's bank pays 7.5% simple interest. At the end of the year, her college fund was worth $10,965. How much was it worth at the start of the year?

Bonus: Sidney is directly in front of Marc-Andre, who is playing goalie, as shown. Sidney is 2.8 m from both goal posts. He is also three times as far from Marc-Andre as Marc-Andre is from either post. How wide is the net?

SOLUTIONS:

Answers (equations may vary)

1. 24oranges,28 apples; x+(x+4)=52,x=oranges

2. Cleo230miles,Thu 290miles; x+(x+60)=520,x=Cleo

3. 42,84; x+2x=126, x=short piece

4. 6.7 kg.; x+5x=8, x=weight of bucket

5. 15,35; 2x+2(2x+5)=100,x=width

6. 12,35; 2x+2(3x−1)=94,x=width

7. 45,46,47;x+(x+1)+(x+2)=138 x = first number

8. 154,156,158; x+(x+2)+(x+4)=468 x = first number

9. 25,12.5,19.5;x+2x+(x+7)=57 x = second side

10. 20,36,30; x+(2x−4)+(x+10)=86 x = smallest side

11. 200 adult, 230 students; 5x + 2(x + 30) = 1460, x = adult tickets

12. 130 single, 180 couple; 10x + 15(x + 50) = 4000 , x = “singles” tickets

13. 7 nickels, 14 dimes, 12 quarters; 0. 05x + 0.10(2x) + 0. 25(x + 5) = 4. 75, x = nickels

14. 12 nickels, 15 dimes, 30 quarters; 0. 05x + 0.10(x + 3) + 0. 25(2x + 6) = 9. 60, x = nickels

15. $1250; x + 0.08x = 1350 16. 10,200; x + 0.075x = 10, 965 x = amount invested x = original value of her fund

16. $10200; 1.075$x$ = 10965, x = amount invested