

A.A.6: Modeling Equations 1: Analyze and solve verbal problems whose solution requires solving a linear equation in one variable or linear inequality in one variable

- 1 The ages of three brothers are consecutive even integers. Three times the age of the youngest brother exceeds the oldest brother's age by 48 years. What is the age of the youngest brother?
1) 14 2) 18 3) 22 4) 26
- 2 If one-half of a number is 8 less than two-thirds of the number, what is the number?
1) 24 2) 32 3) 48 4) 54
- 3 At the beginning of her mathematics class, Mrs. Reno gives a warm-up problem. She says, "I am thinking of a number such that 6 less than the product of 7 and this number is 85." Which number is she thinking of?
1) 11 2) 13 3) 84 4) 637
- 4 If five times the measure of an angle is decreased by 30° , the result is the same as when two times the measure of the angle is increased by 18° . What is the measure of the angle?
1) -16° 2) -4° 3) 16° 4) 4°
- 5 Robin spent \$17 at an amusement park for admission and rides. If she paid \$5 for admission, and rides cost \$3 each, what is the total number of rides that she went on?
1) 12 2) 2 3) 9 4) 4
- 6 Mario paid \$44.25 in taxi fare from the hotel to the airport. The cab charged \$2.25 for the first mile plus \$3.50 for each additional mile. How many miles was it from the hotel to the airport?
1) 10 2) 11 3) 12 4) 13
- 7 The sum of the ages of the three Romano brothers is 63. If their ages can be represented as consecutive integers, what is the age of the middle brother?
- 8 The sum of three consecutive odd integers is 18 less than five times the middle number. Find the three integers. [Only an algebraic solution can receive full credit.]
- 9 Every month, Omar buys pizzas to serve at a party for his friends. In May, he bought three more than twice the number of pizzas he bought in April. If Omar bought 15 pizzas in May, how many pizzas did he buy in April?
- 10 Sara's telephone service costs \$21 per month plus \$0.25 for each local call, and long-distance calls are extra. Last month, Sara's bill was \$36.64, and it included \$6.14 in long-distance charges. How many local calls did she make?

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Answer Section

1 ANS: 4

Let x = youngest brother and $x + 4$ = oldest brother. $3x - (x + 4) = 48$.

$$2x - 4 = 48$$

$$x = 26$$

REF: 080928ia

2 ANS: 3

$$\frac{1}{2}x = \frac{2}{3}x - 8$$

$$3x = 4x - 48$$

$$x = 48$$

REF: 060111a

3 ANS: 2

$$7x - 6 = 85$$

$$7x = 91$$

$$x = 13$$

REF: 060409a

4 ANS: 3

$$5x - 30 = 2x + 18$$

$$3x = 48$$

$$x = 16$$

REF: 010909a

5 ANS: 4

$$3x + 5 = 17$$

$$x = 4$$

REF: 010801a

6 ANS: 4

$$2.25 + 3.50(m - 1) = 44.25$$

$$3.50m - 3.50 = 42$$

$$3.50m = 45.50$$

$$m = 13$$

REF: 010726a

7 ANS:

$$x + (x + 1) + (x + 2) = 63$$

21. Let x = youngest brother, $x + 1$ = middle brother, $x + 2$ = oldest brother.

$$3x + 3 = 63.$$

$$x = 20$$

The age of the middle brother is $x + 1$, or 21.

REF: 080024a

8 ANS:

7, 9, 11. $x + (x + 2) + (x + 4) = 5(x + 2) - 18$

$$3x + 6 = 5x - 8$$

$$14 = 2x$$

$$7 = x$$

REF: 011237ia

9 ANS:

$$2x + 3 = 15$$

$$6. \quad x = 6$$

REF: 010733a

10 ANS:

$$21 + .25c + 6.14 = 36.64$$

$$38. \quad .25c = 9.50$$

$$c = 38$$

REF: 069925a