

A.CED.A.1: Modeling Linear Equations 2a

- 1 If h represents a number, which equation is a correct translation of "Sixty more than 9 times a number is 375"?
 - 1) $9h = 375$
 - 2) $9h + 60 = 375$
 - 3) $9h - 60 = 375$
 - 4) $60h + 9 = 375$

- 2 Three times the sum of a number and four is equal to five times the number, decreased by two. If x represents the number, which equation is a correct translation of the statement?
 - 1) $3(x + 4) = 5x - 2$
 - 2) $3(x + 4) = 5(x - 2)$
 - 3) $3x + 4 = 5x - 2$
 - 4) $3x + 4 = 5(x - 2)$

- 3 The product of a number and 3, increased by 5, is 7 less than twice the number. Which equation can be used to find this number, n ?
 - 1) $3n + 5 = 2n - 7$
 - 2) $3n + 5 = 7 - 2n$
 - 3) $3(n + 5) = 2n - 7$
 - 4) $3(n + 5) = 7 - 2n$

- 4 Rhonda has \$1.35 in nickels and dimes in her pocket. If she has six more dimes than nickels, which equation can be used to determine x , the number of nickels she has?
 - 1) $0.05(x + 6) + 0.10x = 1.35$
 - 2) $0.05x + 0.10(x + 6) = 1.35$
 - 3) $0.05 + 0.10(6x) = 1.35$
 - 4) $0.15(x + 6) = 1.35$

- 5 Byron has 72 coins in his piggy bank. The piggy bank contains only dimes and quarters. If he has \$14.70 in his piggy bank, which equation can be used to determine q , the number of quarters he has?
 - 1) $14.70 + 0.25q = 72$
 - 2) $0.10(q - 72) + 0.25q = 14.70$
 - 3) $0.10(72 - q) + 0.25q = 14.70$
 - 4) $0.10q + 0.25(72 - q) = 14.70$

- 6 The width of a rectangle is 4 less than half the length. If ℓ represents the length, which equation could be used to find the width, w ?
 - 1) $w = \frac{1}{2}(4 - \ell)$
 - 2) $w = \frac{1}{2}(\ell - 4)$
 - 3) $w = \frac{1}{2}\ell - 4$
 - 4) $w = 4 - \frac{1}{2}\ell$

- 7 The width of a rectangle is 3 less than twice the length, x . If the area of the rectangle is 43 square feet, which equation can be used to find the length, in feet?
 - 1) $2x(x - 3) = 43$
 - 2) $x(3 - 2x) = 43$
 - 3) $2x + 2(2x - 3) = 43$
 - 4) $x(2x - 3) = 43$

- 8 The length of a rectangular window is 5 feet more than its width, w . The area of the window is 36 square feet. Which equation could be used to find the dimensions of the window?
- 1) $w^2 + 5w + 36 = 0$
 - 2) $w^2 - 5w - 36 = 0$
 - 3) $w^2 - 5w + 36 = 0$
 - 4) $w^2 + 5w - 36 = 0$
- 9 If n is an odd integer, which equation can be used to find three consecutive odd integers whose sum is -3 ?
- 1) $n + (n + 1) + (n + 3) = -3$
 - 2) $n + (n + 1) + (n + 2) = -3$
 - 3) $n + (n + 2) + (n + 4) = -3$
 - 4) $n + (n + 2) + (n + 3) = -3$
- 10 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
- 11 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.]

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Answer Section

1 ANS: 2 REF: 080901ia

2 ANS: 1 REF: 061418ia

3 ANS: 1 REF: 061508ia

4 ANS: 2 REF: 010915ia

5 ANS: 3 REF: 081424ia

6 ANS: 3 REF: 011413ia

7 ANS: 4 REF: 081011ia

8 ANS: 4

$$w(w + 5) = 36$$

$$w^2 + 5w - 36 = 0$$

REF: fall0726ia

9 ANS: 3 REF: 061225ia

10 ANS: 4

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

$$2x - 4 = 48$$

$$x = 26$$

REF: 080928ia

11 ANS:

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

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

$$14 = 2x$$

$$7 = x$$

REF: 011237ia