

A.A.5: Modeling Equations: Write algebraic equations or inequalities that represent a situation

- 1 When Albert flips open his mathematics textbook, he notices that the product of the page numbers of the two facing pages that he sees is 156. Which equation could be used to find the page numbers that Albert is looking at?
 - 1) $x + (x + 1) = 156$
 - 2) $(x + 1) + (x + 2) = 156$
 - 3) $(x + 1)(x + 3) = 156$
 - 4) $x(x + 1) = 156$
- 2 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) $n + (n + 2) + (n + 3) = -3$
- 3 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) $0.15(x + 6) = 1.35$
- 4 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) $0.10q + 0.25(72 - q) = 14.70$
- 5 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) $w^2 + 5w - 36 = 0$
- 6 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) $x(2x - 3) = 43$
- 7 A farmer has a rectangular field that measures 100 feet by 150 feet. He plans to increase the area of the field by 20%. He will do this by increasing the length and width by the same amount, x . Which equation represents the area of the new field?
 - 1) $(100 + 2x)(150 + x) = 18,000$
 - 2) $2(100 + x) + 2(150 + x) = 15,000$
 - 3) $(100 + x)(150 + x) = 18,000$
 - 4) $(100 + x)(150 + x) = 15,000$

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Answer Section

1 ANS: 4 REF: 080627a

2 ANS: 3 REF: 061225ia

3 ANS: 2 REF: 010915ia

4 ANS: 3 REF: 081424ia

5 ANS: 4

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

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

REF: fall0726ia

6 ANS: 4 REF: 081011ia

7 ANS: 3

$$100 \times 150 \times 120\% = 18000$$

REF: 060425a