

A.A.28: Roots of Quadratics: Understand the difference and connection between roots of a quadratic equation and factors of a quadratic expression

- 1 What are the roots of the equation $x^2 - 10x + 21 = 0$?
 - 1) 1 and 21
 - 2) -5 and -5
 - 3) 3 and 7
 - 4) -3 and -7
- 2 What are the roots of the equation $x^2 - 5x + 6 = 0$?
 - 1) 1 and -6
 - 2) 2 and 3
 - 3) -1 and 6
 - 4) -2 and -3
- 3 What are the roots of the equation $x^2 - 7x + 6 = 0$?
 - 1) 1 and 7
 - 2) -1 and 7
 - 3) -1 and -6
 - 4) 1 and 6
- 4 The roots of the equation $x^2 - 14x + 48 = 0$ are
 - 1) -6 and -8
 - 2) -6 and 8
 - 3) 6 and -8
 - 4) 6 and 8
- 5 The roots of the equation $2x^2 - 8x = 0$ are
 - 1) -2 and 2
 - 2) 0, -2 and 2
 - 3) 0 and -4
 - 4) 0 and 4
- 6 The roots of the equation $3x^2 - 27x = 0$ are
 - 1) 0 and 9
 - 2) 0 and -9
 - 3) 0 and 3
 - 4) 0 and -3
- 7 One of the roots of the equation $x^2 + 3x - 18 = 0$ is 3. What is the other root?
 - 1) 15
 - 2) 6
 - 3) -6
 - 4) -21
- 8 The larger root of the equation $(x + 4)(x - 3) = 0$ is
 - 1) -4
 - 2) -3
 - 3) 3
 - 4) 4
- 9 Find the roots of the equation $x^2 - x = 6$ algebraically.
- 10 Find the roots of the equation $x^2 = 30 - 13x$ algebraically.
- 11 If the roots of a quadratic equation are -2 and 3, the equation can be written as
 - 1) $(x - 2)(x + 3) = 0$
 - 2) $(x + 2)(x - 3) = 0$
 - 3) $(x + 2)(x + 3) = 0$
 - 4) $(x - 2)(x - 3) = 0$
- 12 If the roots of a quadratic equation are -4 and 2, the equation is equivalent to
 - 1) $(x + 4)(x - 2) = 0$
 - 2) $(x - 4)(x + 2) = 0$
 - 3) $(x + 4)(x + 2) = 0$
 - 4) $(x - 4)(x - 2) = 0$
- 13 Which equation has roots of -3 and 5?
 - 1) $x^2 + 2x - 15 = 0$
 - 2) $x^2 - 2x - 15 = 0$
 - 3) $x^2 + 2x + 15 = 0$
 - 4) $x^2 - 2x + 15 = 0$
- 14 Which equation has the solution set $\{1, 3\}$?
 - 1) $x^2 - 4x + 3 = 0$
 - 2) $x^2 - 4x - 3 = 0$
 - 3) $x^2 + 4x + 3 = 0$
 - 4) $x^2 + 4x - 3 = 0$
- 15 For which equation is the solution set $\{-5, 2\}$?
 - 1) $x^2 + 3x - 10 = 0$
 - 2) $x^2 - 3x = 10$
 - 3) $x^2 + 3x = -10$
 - 4) $x^2 - 3x + 10 = 0$
- 16 Write a quadratic equation in standard form that has roots of -12 and 2.
- 17 Form the quadratic equation whose roots are -5 and +7.
- 18 The two roots of an equation are -4 and +3. Form the equation.

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Answer Section

1 ANS: 3

$$x^2 - 10x + 21 = 0$$

$$(x - 7)(x - 3) = 0$$

$$x = 7 \quad x = 3$$

REF: 010914ia

2 ANS: 2

$$x^2 - 5x + 6 = 0$$

$$(x - 3)(x - 2) = 0$$

$$x = 3 \quad x = 2$$

REF: 081120ia

3 ANS: 4

$$x^2 - 7x + 6 = 0$$

$$(x - 6)(x - 1) = 0$$

$$x = 6 \quad x = 1$$

REF: 060902ia

4 ANS: 4

$$x^2 - 14x + 48 = 0$$

$$(x - 6)(x - 8) = 0$$

$$x = 6, 8$$

REF: 011320ia

5 ANS: 4

$$2x^2 - 8x = 0$$

$$2x(x - 4) = 0$$

$$x = 0, 4$$

REF: 011427ia

6 ANS: 1

$$3x^2 - 27x = 0$$

$$3x(x - 9) = 0$$

$$x = 0, 9$$

REF: 011223ia

7 ANS: 3

$$x^2 + 3x - 18 = 0$$

$$(x + 6)(x - 3) = 0$$

$$x = -6 \quad x = 3$$

REF: 080622a

8 ANS: 3

The two roots are -4 and 3. The larger root is 3.

REF: 069909a

9 ANS:

$$-2, 3. \quad x^2 - x = 6$$

$$x^2 - x - 6 = 0$$

$$(x - 3)(x + 2) = 0$$

$$x = 3 \text{ or } -2$$

REF: 011034ia

10 ANS:

$$-15, 2 \quad x^2 + 13x - 30 = 0$$

$$(x + 15)(x - 2) = 0$$

$$x = -15, 2$$

REF: 081036ia

11 ANS: 2

REF: 061326ia

12 ANS: 1

REF: 081420ia

13 ANS: 2

$$x^2 - 2x - 15 = 0$$

$$(x - 5)(x + 3) = 0$$

$$x = 5 \quad x = -3$$

REF: 011128ia

14 ANS: 1

$$x^2 - 4x + 3 = 0$$

$$(x - 3)(x - 1) = 0$$

$$x = 3 \quad x = 1$$

REF: 010913a

15 ANS: 1

$$x^2 + 3x - 10 = 0$$

$$(x + 5)(x - 2) = 0$$

$$x = -5 \quad x = 2$$

REF: 080825a

16 ANS:

$$(x + 12)(x - 2) = 0$$

$$x^2 + 10x - 24 = 0$$

REF: 061533ia

17 ANS:

$$x^2 - 2x - 35 = 0$$

REF: 019012al

18 ANS:

$$x^2 + x - 12 = 0$$

REF: 119207al