Name: _____

A.REI.B.4: Roots of Quadratics 3

1 If the equation $x^2 - kx - 36 = 0$ has $x = 12$ as one root, what is the value of k?
1) 9
2) –9
3) 3
4) –3

2 If 2 and 3 are roots of the equation $x^2 + kx + 6 = 0$, what is the value of k?
1) 1
2) 6
3) 5
4) –5

3 If -1 and 7 are the roots of the quadratic equation $x^2 + kx - 7 = 0$, then k must be
1) –7
2) –6
3) 6
4) 8

4 If one root of the equation $x^2 + kx - 15 = 0$ is –3, what is the other root?
1) –2
2) 2
3) 3
4) 5

5 In the equation $x^2 - 3x + c = 0$, one value of x is 2.5. Find c. Find the other value of x.

6 For which equation is the sum of the roots equal to the product of the roots?
1) $x^2 + x + 1 = 0$
2) $x^2 + 3x - 6 = 0$
3) $x^2 - 8x - 4 = 0$
4) $x^2 - 4x + 4 = 0$

7 If the sum of the roots of the equation $x^2 + kx - 3 = 0$ is equal to the product of the roots, the value of k is
1) –6
2) –3
3) 3
4) 6

8 What is the product of the roots of $x^2 - 4x + k = 0$ if one of the roots is 7?
1) 21
2) –11
3) –21
4) –77

9 Which quadratic equation has the roots $2 - \sqrt{3}$ and $2 + \sqrt{3}$?
1) $x^2 - 4x + 7 = 0$
2) $x^2 + 4x + 7 = 0$
3) $x^2 - 4x + 1 = 0$
4) $x^2 + 4x - 1 = 0$

10 Which equation has roots of $3 + \sqrt{2}$ and $3 - \sqrt{2}$?
1) $x^2 + 6x + 7 = 0$
2) $x^2 - 6x + 7 = 0$
3) $x^2 - 7x - 4 = 0$
4) $x^2 - 7x + 6 = 0$

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Answer Section

1 ANS: 1

$$\frac{c}{a} = 12r \qquad -\frac{b}{a} = x + 12$$

$$\frac{-36}{1} = 12r . \quad -\frac{-k}{1} = -3 + 12$$

$$r = -3 \qquad k = 9$$

REF: 060606b

2 ANS: 4   REF: 018728siii

3 ANS: 2   REF: 019923siii

4 ANS: 4   REF: 060325siii

5 ANS:
   1.25, 0.5

REF: 069940siii

6 ANS: 4

$$-\frac{b}{a} = -\frac{-4}{1} = 4 . \quad \frac{c}{a} = \frac{4}{1} = 4$$

REF: 080612b

7 ANS: 3   REF: 018633siii

8 ANS: 3

$$\frac{-b}{a} = \frac{-(-4)}{1} = 4. \text{ If the sum is 4, the roots must be 7 and } -3.$$

REF: 011418a2

9 ANS: 3

The sum of the roots is 4 and the product of the roots is 1. $\text{sum} = \frac{-b}{a} = \frac{-(-4)}{1} = 4. \text{ prooduct} = \frac{c}{a} = \frac{1}{1} = 1.$

REF: 061017b

10 ANS: 2   REF: 089628siii