

**A.SSE.B.3: Solving Quadratics**

- 1 Keith determines the zeros of the function  $f(x)$  to be  $-6$  and  $5$ . What could be Keith's function?
  - 1)  $f(x) = (x + 5)(x + 6)$
  - 2)  $f(x) = (x + 5)(x - 6)$
  - 3)  $f(x) = (x - 5)(x + 6)$
  - 4)  $f(x) = (x - 5)(x - 6)$
  
- 2 What is the solution set of the equation  $(x - 2)(x - a) = 0$ ?
  - 1)  $-2$  and  $a$
  - 2)  $-2$  and  $-a$
  - 3)  $2$  and  $a$
  - 4)  $2$  and  $-a$
  
- 3 Which equation has the same solutions as  $2x^2 + x - 3 = 0$ ?
  - 1)  $(2x - 1)(x + 3) = 0$
  - 2)  $(2x + 1)(x - 3) = 0$
  - 3)  $(2x - 3)(x + 1) = 0$
  - 4)  $(2x + 3)(x - 1) = 0$
  
- 4 The zeros of the function  $f(x) = 2x^2 - 4x - 6$  are
  - 1)  $3$  and  $-1$
  - 2)  $3$  and  $1$
  - 3)  $-3$  and  $1$
  - 4)  $-3$  and  $-1$
  
- 5 The zeros of the function  $f(x) = 3x^2 - 3x - 6$  are
  - 1)  $-1$  and  $-2$
  - 2)  $1$  and  $-2$
  - 3)  $1$  and  $2$
  - 4)  $-1$  and  $2$
  
- 6 Solve  $8m^2 + 20m = 12$  for  $m$  by factoring.
  
- 7 In the equation  $x^2 + 10x + 24 = (x + a)(x + b)$ ,  $b$  is an integer. Find algebraically *all* possible values of  $b$ .
  
- 8 The function  $r(x)$  is defined by the expression  $x^2 + 3x - 18$ . Use factoring to determine the zeros of  $r(x)$ . Explain what the zeros represent on the graph of  $r(x)$ .
  
- 9 Janice is asked to solve  $0 = 64x^2 + 16x - 3$ . She begins the problem by writing the following steps:  
Line 1  $0 = 64x^2 + 16x - 3$   
Line 2  $0 = B^2 + 2B - 3$   
Line 3  $0 = (B + 3)(B - 1)$   
Use Janice's procedure to solve the equation for  $x$ . Explain the method Janice used to solve the quadratic equation.

**A.SSE.B.3: Solving Quadratics****Answer Section**

1 ANS: 3 REF: 061412ai

2 ANS: 3 REF: 011702ai

3 ANS: 4 REF: 011503ai

4 ANS: 1

$$2x^2 - 4x - 6 = 0$$

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

$$2(x - 3)(x + 1) = 0$$

$$x = 3, -1$$

REF: 011609ai

5 ANS: 4

$$3x^2 - 3x - 6 = 0$$

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

$$3(x - 2)(x + 1) = 0$$

$$x = 2, -1$$

REF: 081513ai

6 ANS:

$$8m^2 + 20m - 12 = 0$$

$$4(2m^2 + 5m - 3) = 0$$

$$(2m - 1)(m + 3) = 0$$

$$m = \frac{1}{2}, -3$$

REF: fall1305ai

7 ANS:

$$x^2 + 10x + 24 = (x + 4)(x + 6) = (x + 6)(x + 4). \quad 6 \text{ and } 4$$

REF: 081425ai

8 ANS:

$$x^2 + 3x - 18 = 0 \quad \text{The zeros are the } x\text{-intercepts of } r(x).$$

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

$$x = -6, 3$$

REF: 061733ai

9 ANS:

$0 = (B + 3)(B - 1)$  Janice substituted  $B$  for  $8x$ , resulting in a simpler quadratic. Once factored, Janice substituted

$$0 = (8x + 3)(8x - 1)$$

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

$8x$  for  $B$ .

REF: 081636ai