

**A2.A.20: Roots of Quadratics 2: Determine the sum and product of the roots of a quadratic equation by examining its coefficients**

- 1 Given the equation  $x^2 + 3x - 9 = 0$ . What is the product of the roots?
- 2 What is the product of the roots of the equation  $-2x^2 + 3x + 8 = 0$ ?
- 3 What is the product of the roots of the equation  $2x^2 - 9x + 6 = 0$ ?
- 4 What is the product of the roots of the equation  $2x^2 - x - 2 = 0$ ?
- 5 What is the product of the roots of  $4x^2 - 5x = 3$ ?
- 6 What is the product of the roots of the quadratic equation  $2x^2 - 7x = 5$ ?
- 7 What is the sum of the roots of the equation  $2x^2 - 3x + 4 = 0$ ?
- 8 What is the sum of the roots of the equation  $2x^2 - 13x + 17 = 0$ ?
- 9 What is the sum of the roots of the equation  $2x^2 + 6x - 7 = 0$ ?
- 10 What is the sum of the roots of the equation  $3x^2 - 2x + 5 = 0$ ?
- 11 What is the sum of the roots of the equation  $2x^2 - 3x + 9 = 0$ ?
- 12 What is the sum of the roots of the equation  $-3x^2 + 6x - 2 = 0$ ?
- 13 Find the sum of the roots of the equation  $x^2 + 7x - 8 = 0$ .
- 14 What are the sum and product of the roots of the equation  $6x^2 - 4x - 12 = 0$ ?
- 15 What are the sum ( $S$ ) and product ( $P$ ) of the roots of the equation  $2x^2 - 4x + 1 = 0$ ?
- 16 What are the sum ( $S$ ) and product ( $P$ ) of the roots of the equation  $3x^2 - 7x + 12 = 0$ ?
- 17 Which statement about the equation  $3x^2 + 9x - 12 = 0$  is true?
  - 1) The product of the roots is  $-12$ .
  - 2) The product of the roots is  $-4$ .
  - 3) The sum of the roots is  $3$ .
  - 4) The sum of the roots is  $-9$ .
- 18 Find the sum and product of the roots of the equation  $5x^2 + 11x - 3 = 0$ .
- 19 Determine the sum and the product of the roots of the equation  $12x^2 + x - 6 = 0$ .
- 20 Determine the sum and the product of the roots of  $3x^2 = 11x - 6$ .
- 21 Given the equation  $3x^2 + 2x + k = 0$ , state the sum and product of the roots.
- 22 If the sum of the roots of  $x^2 + 3x - 5$  is added to the product of its roots, the result is
- 23 If the sum of the roots of the equation  $2x^2 - 5x - 3 = 0$  is added to the product of the roots, the result is
- 24 In the equation  $x^2 - 7x + 2 = 0$ , the sum of the roots exceeds the product of the roots by

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### Answer Section

1 ANS:  
-9

REF: 088730siii

2 ANS:  
-4

REF: 068733siii

3 ANS:  
3

REF: 019523siii

4 ANS:  
-1

REF: 019726siii

5 ANS:

$$-\frac{3}{4}$$

$$\frac{c}{a} = \frac{-3}{4}$$

REF: 011517a2

6 ANS:

$$-\frac{5}{2}$$

$$2x^2 - 7x - 5 = 0$$

$$\frac{c}{a} = \frac{-5}{2}$$

REF: 061414a2

7 ANS:

$$\frac{3}{2}$$

REF: 019424siii

8 ANS:

$$\frac{13}{2}$$

REF: 010429siii

9 ANS:  
-3

REF: 069635siii

10 ANS:  
 $\frac{2}{3}$

REF: 080129siii

11 ANS:  
 $\frac{3}{2}$

REF: 089418siii

12 ANS:  
2  
 $\frac{-b}{a} = \frac{-6}{-3} = 2$

REF: 011613a2

13 ANS:  
-7

REF: 080210siii

14 ANS:  
sum =  $\frac{2}{3}$ ; product = -2  
sum:  $\frac{-b}{a} = \frac{4}{6} = \frac{2}{3}$ . product:  $\frac{c}{a} = \frac{-12}{6} = -2$

REF: 011209a2

15 ANS:  
 $S = 2, P = \frac{1}{2}$

REF: 069833siii

16 ANS:  
 $S = \frac{7}{3}, P = 4$

REF: 060133siii

17 ANS: 2  
 $P = \frac{c}{a} = \frac{-12}{3} = -4$

REF: 081506a2

18 ANS:

$$\text{Sum } \frac{-b}{a} = -\frac{11}{5}. \text{ Product } \frac{c}{a} = -\frac{3}{5}$$

REF: 061030a2

19 ANS:

$$\text{Sum } \frac{-b}{a} = -\frac{1}{12}. \text{ Product } \frac{c}{a} = -\frac{1}{2}$$

REF: 061328a2

20 ANS:

$$3x^2 - 11x + 6 = 0. \text{ Sum } \frac{-b}{a} = \frac{11}{3}. \text{ Product } \frac{c}{a} = \frac{6}{3} = 2$$

REF: 011329a2

21 ANS:

$$\text{Sum } \frac{-b}{a} = \frac{-2}{3}. \text{ Product } \frac{c}{a} = \frac{k}{3}$$

REF: 061534a2

22 ANS:

$$-8$$

REF: 080217b

23 ANS:

$$1$$

REF: 069034siii

24 ANS:

$$5$$

REF: 060030siii