

## Grade 9 Mathematics

M3/13, M3/14

### Quadratic Equations — Multiple Choice Questions

Name: \_\_\_\_\_ Date: \_\_\_\_\_

**Instructions:** Choose the best answer for each question. Show your working where necessary.

1. Which of the following is a quadratic equation?

- A.  $3x + 5 = 0$
- B.  $x^2 - 4x + 3 = 0$
- C.  $2/x + 1 = 0$
- D.  $x^3 - 2 = 0$

2. What are the solutions of  $x^2 - 5x + 6 = 0$ ?

- A.  $x = 1, 6$
- B.  $x = 2, 3$
- C.  $x = -2, -3$
- D.  $x = 3, 6$

3. Solve:  $x^2 - 9 = 0$ .

- A.  $x = 9$
- B.  $x = -9$
- C.  $x = \pm 3$
- D.  $x = 3$  only

4. Which factorization is correct for  $x^2 + 7x + 12$ ?

- A.  $(x + 3)(x + 4)$
- B.  $(x + 2)(x + 6)$
- C.  $(x - 3)(x - 4)$
- D.  $(x + 1)(x + 12)$

5. What is the value of the discriminant of  $2x^2 + 3x - 2 = 0$ ?

- A. 1
- B. 9
- C. 25
- D. 17

6. How many real solutions does  $x^2 + 4x + 7 = 0$  have?

- A. 0
- B. 1
- C. 2
- D. 3

7. Solve:  $x^2 + 2x - 8 = 0$ .

- A.  $x = 2, -4$
- B.  $x = 4, -2$
- C.  $x = 2, 4$

- D.  $x = -2, -4$
8. For  $3x^2 - 12x = 0$ , what are the solutions?
- A.  $x = 0, 4$
  - B.  $x = 3, 4$
  - C.  $x = -4, 0$
  - D.  $x = 4$  only
9. Which equation has roots  $x = 2$  and  $x = -5$ ?
- A.  $x^2 + 3x - 10 = 0$
  - B.  $x^2 - 3x - 10 = 0$
  - C.  $x^2 + 7x + 10 = 0$
  - D.  $x^2 - 7x + 10 = 0$
10. What is the sum of the roots of  $2x^2 - 7x + 3 = 0$ ?
- A.  $-7/2$
  - B.  $7/2$
  - C.  $3/2$
  - D.  $-3/2$
11. Solve using the quadratic formula:  $x^2 - 6x + 5 = 0$ .
- A.  $x = 1, 5$
  - B.  $x = -1, -5$
  - C.  $x = 2, 4$
  - D.  $x = 3, 5$
12. If  $x^2 - kx + 12 = 0$  has roots 3 and 4, what is  $k$ ?
- A. 1
  - B. 7
  - C. 12
  - D. 14
13. Which value of  $x$  satisfies  $2x^2 + x - 3 = 0$ ?
- A.  $x = 1$
  - B.  $x = -1$
  - C.  $x = 3/2$
  - D.  $x = 2$
14. A rectangle has area  $48 \text{ cm}^2$  and its length is 2 cm more than its width. What is its width?
- A. 4 cm
  - B. 6 cm
  - C. 8 cm
  - D. 10 cm
15. The graph of a quadratic equation crosses the  $x$ -axis at  $x = -2$  and  $x = 5$ . Which equation could represent it?
- A.  $y = x^2 + 3x - 10$
  - B.  $y = x^2 - 3x - 10$

C.  $y = x^2 - 7x + 10$

D.  $y = x^2 + 7x + 10$