

Unit 2A: Quadratic Functions - Representations

PRE-TEST

Simplify each sum or difference

1. $(7p - 2p^3 - 3p^4) + (3p^3 + 8p^4 - 8p)$

2. $(4m^2 + 2m + 2m^4) - (2m - 4m^2 + 6m^4)$

Find each product

3. $(7x - 7)(2x + 4)$

4. $(n^2 - 2n - 2)(5n^2 - 5n + 4)$

Factor each Quadratic expression completely.

5. $3x^2 + 42x + 144$

6. $4n^2 + 56n + 180$

7. $5k^3 - 44k^2 + 63k$

8. $14x^2 - 152x + 120$

9. $9x^2 - 11x - 14$

10. $12a^2 + 2a - 10$

Factor each Special Case Quadratic expression completely.

11. $x^2 - 16$

12. $9p^2 - 25$

13. $3a^2 + 18a + 27$

14. $k^2 + 2k + 1$

Find the value of c that completes the square.

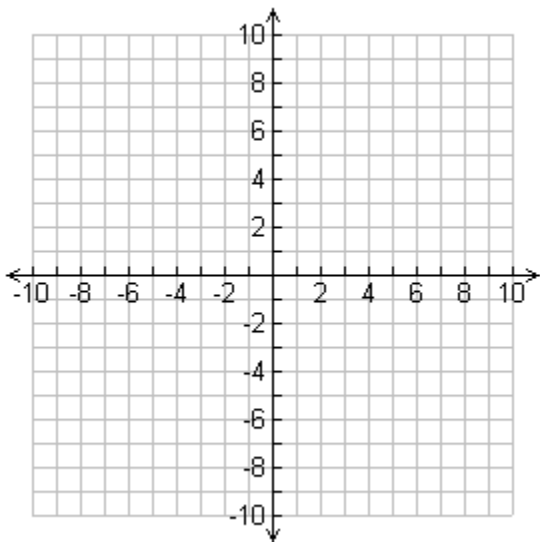
15. $a^2 + 26a + c$

16. $x^2 + 24x + c$

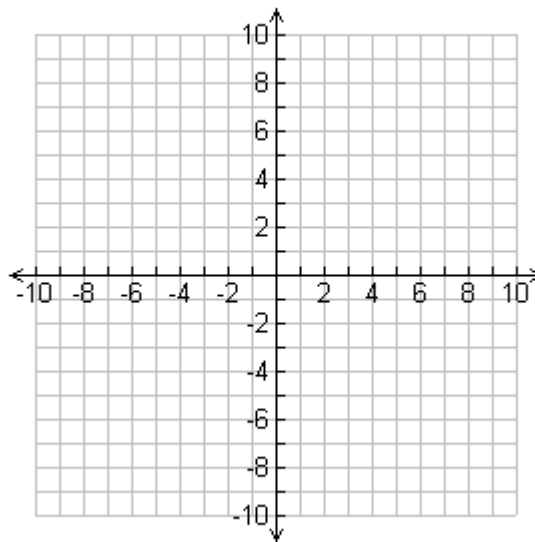
Sketch the graph of each Quadratic function. Identify each of the following components:

- a. Axis of Symmetry
- b. The ordered pair of the Vertex
- c. The y-intercept
- d. The x-intercept(s)

17. $y = -x^2 - 6x - 10$



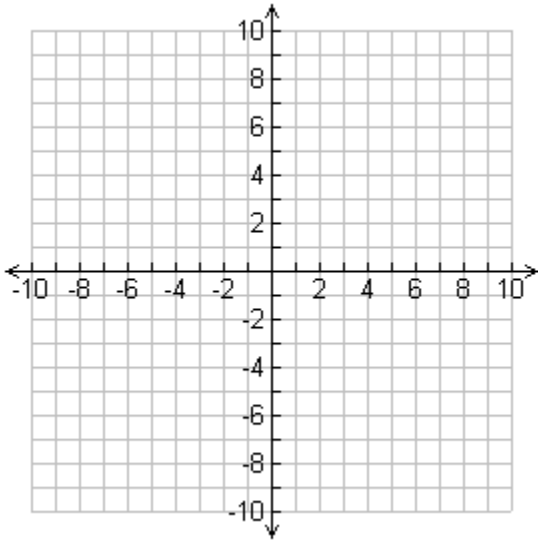
18. $f(x) = 2x^2 + 16x + 9$



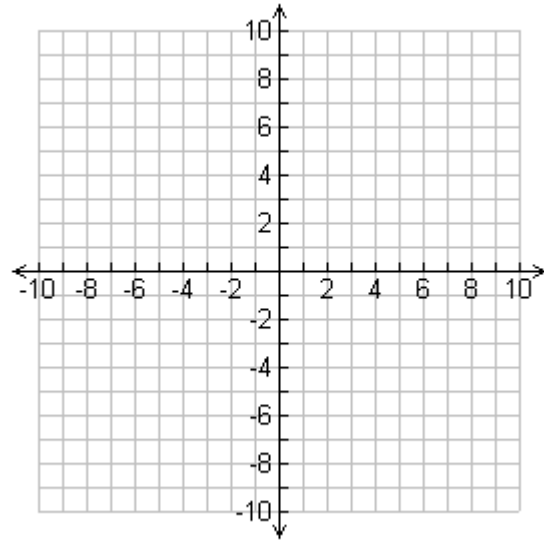
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19. $y = 2(x - 2)^2 + 3$



20. $f(x) = -(x - 1)^2 + 2$



Using the graphs created in 17 – 20, compare and analyze the given functions with each other.

21. The graphs of 17 and 18.

22. The graphs of 19 and 20.