

Vertex Form Using Completing the Square

Name: _____ Hr: _____

Vertex form: $y = a(x - h)^2 + k$ $c = \left(\frac{b}{2}\right)^2$

Find the value of 'c' that would make a perfect square trinomial. Then write the expression as a square of a binomial.

a) $x^2 + 4x + c$

b) $x^2 - 2x + c$

c) $x^2 + 18x + c$

Change the equation from standard form to vertex form. Identify the vertex and axis of symmetry.

1. $y = x^2 + 4x - 12$

2. $y = x^2 - 6x + 21$

3. $y = x^2 - 8x + 4$

4. $y = x^2 + 3x - 5$

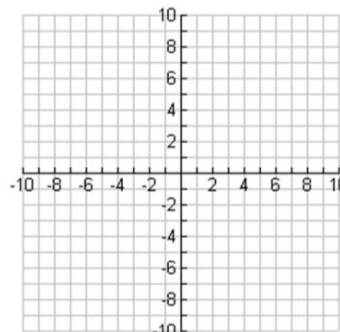
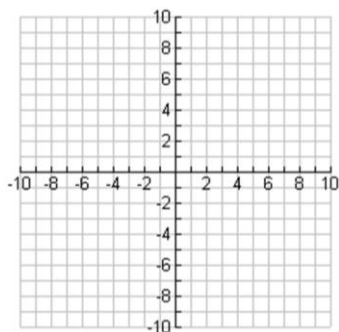
5. $y = 2x^2 + 4x - 12$

6. $y = -x^2 - 3x + 18$

Change the equation from standard form to vertex form and identify the vertex. Then sketch a graph

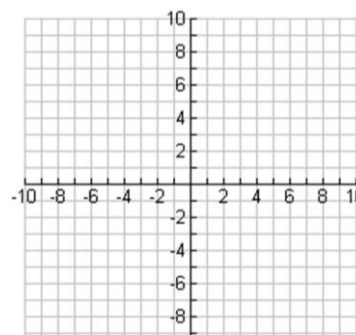
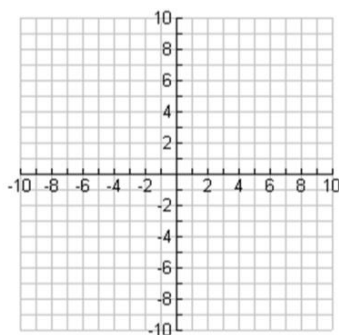
7. $y = x^2 + 16x + 71$

8. $y = x^2 - 2x - 5$



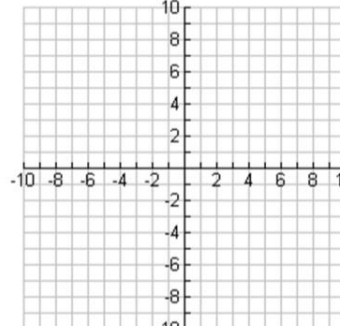
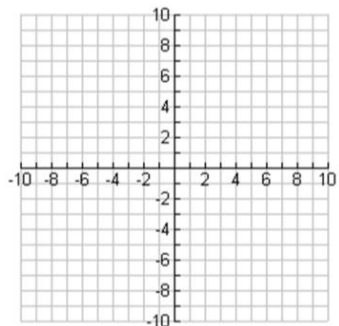
9. $y = x^2 + 4x$

10. $y = -x^2 - 6x - 5$



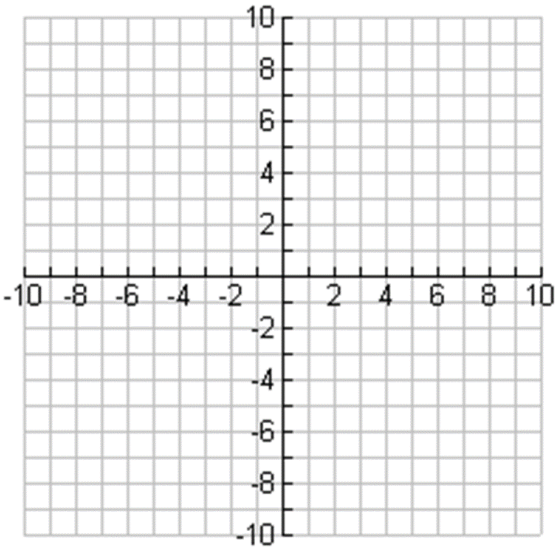
11. $y = -2x^2 + 4x + 3$

12. $y = 3x^2 + 6x + 9$



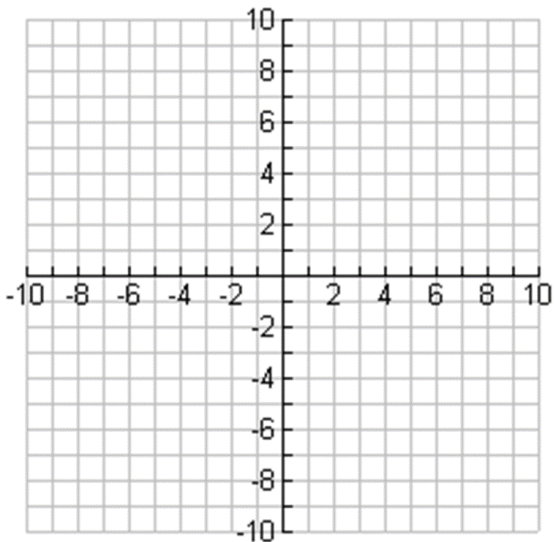
Given the quadratic equations in standard form, find the following and graph:

13. $y = x^2 + 4x + 5$



- A) Vertex Form _____
- B) Vertex _____
- C) Axis of Symmetry _____
- D) Max/Min _____
- E) y-intercept _____
- F) x-intercept(s): _____
- G) Domain: _____
- H) Range: _____
- I) Find $f(4)$: _____

14. $y = x^2 - 8x + 12$



- A) Vertex Form _____
- B) Vertex _____
- C) Axis of Symmetry _____
- D) Max/Min _____
- E) y-intercept _____
- F) x-intercept(s): _____
- G) Domain: _____
- H) Range: _____
- I) Find $f(3)$: _____