

Vertex Form: Write the vertex of each equation. State if the graph opens up or down. State if the graph is narrower than, wider than, or the same as the parent graph $y = x^2$.

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

5.) $y = \frac{5}{8}(x)^2 + 1$

2.) $y = -\frac{1}{3}(x + 4)^2 - 12$

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

3.) $y = 8(x - 4)^2$

7.) $y = (x + 1)^2 + 10$

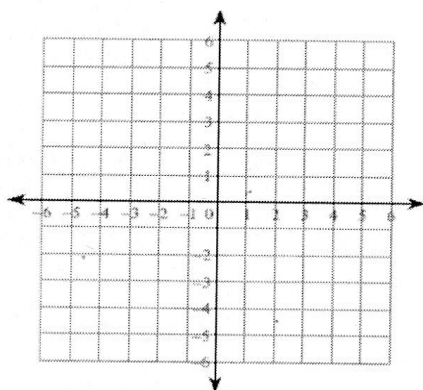
4.) $y = -(x - 2)^2 + 7$

8.) $y = \frac{7}{3}(x)^2 + 2$

Vertex and Standard Form: Graph the quadratic. State the vertex, axis of symmetry, y-intercept, domain and range. Make a table of values if needed.

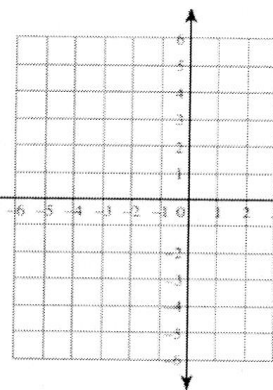
9.) $y = (x - 2)^2 + 1$

Vertex (_____) _____
 Axis of Symmetry _____
 y-intercept _____
 Domain _____
 Range _____

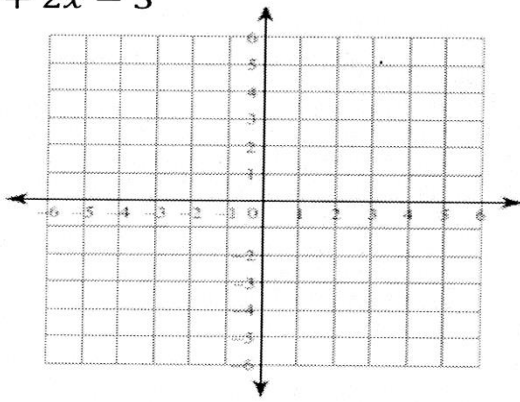


10.) $y = -\frac{1}{2}(x - 4)^2 + 6$

Vertex (_____) _____
 Axis of Symmetry _____
 y-intercept _____
 Domain _____
 Range _____



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



Vertex (_____)

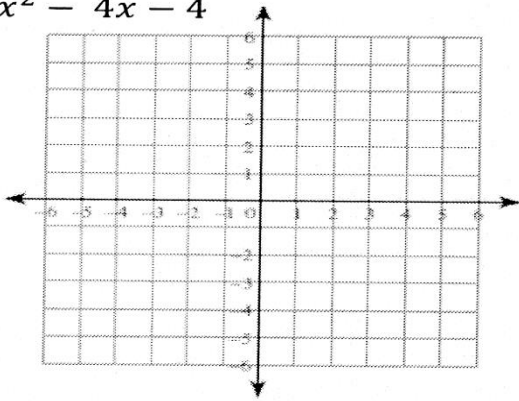
Axis of Symmetry _____

y-intercept _____

Domain _____

Range _____

12.) $y = -x^2 - 4x - 4$



Vertex (_____)

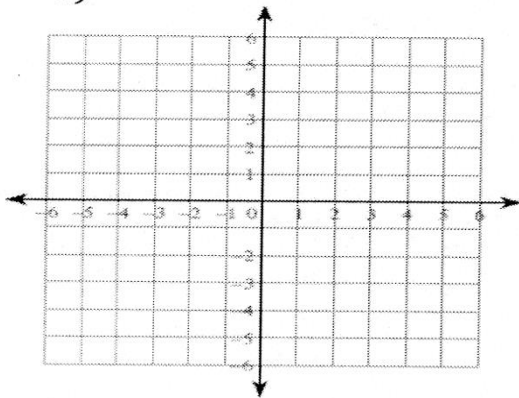
Axis of Symmetry _____

y-intercept _____

Domain _____

Range _____

13.) $y = \frac{2}{3}(x - 3)^2$



Vertex (_____)

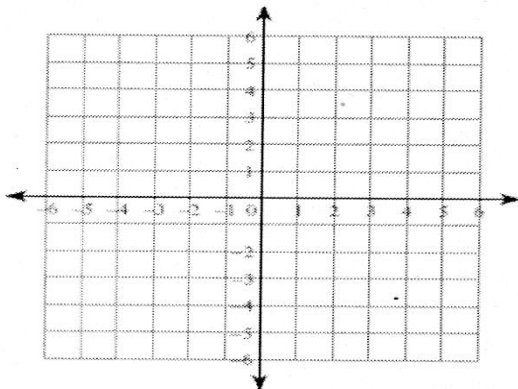
Axis of Symmetry _____

y-intercept _____

Domain _____

Range _____

14.) $y = -2(x - 3)^2 + 5$



Vertex (_____)

Axis of Symmetry _____

y-intercept _____

Domain _____

Range _____

Factor the trinomial.

1.) $x^2 + 19x + 90$

2.) $x^2 - 16x + 55$

3.) $3x^2 - 13x + 12$

4.) $15x^2 - x - 2$

Factor the expression.

5.) $x^2 - 6x + 9$

6.) $16x^2 - 9$

7.) $25x^2 - 121$

8.) ~~$81x^2 + 198x + 121$~~

9.) $3x^2 - 243$

10.) $49x^2 - 14x + 1$

~~11.) $8a^2 + 10ab^2 + 4ab + 5b^3$~~

Solve the equation.

12.) $x^2 - 22x + 120 = 0$

13.) $5x^2 + 14x - 3 = 0$

14.) $4x^2 + 10x = x^2 - x + 4$

15.) $3x^2 - x - 40 = x^2 + 2x -$

Write the equation in factored form and state the x-intercepts.

16.) $y = x^2 - 1$

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

18.) $y = x^2 + 10x + 25$