

Horizontal and Vertical Shifts

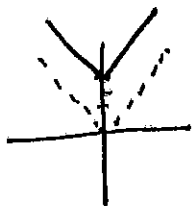
Notes

$$y = |x|$$



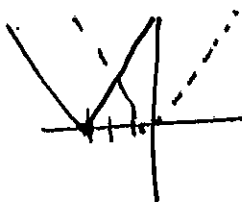
vertex (0,0)

$$y = |x| + 3$$



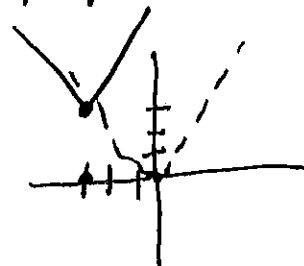
vertex (0,3)

$$y = |x+3|$$



vertex (-3,0)

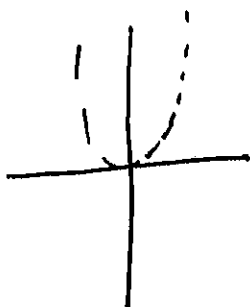
$$y = |x+3| + 3$$



$\frac{3}{3}$ (L) R
(V) D

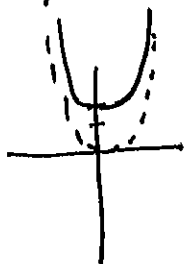
vertex (-3,3)

$$y = x^2$$



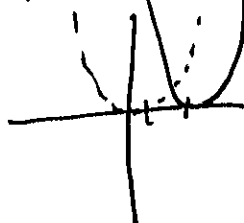
vertex (0,0)

$$y = x^2 + 2$$



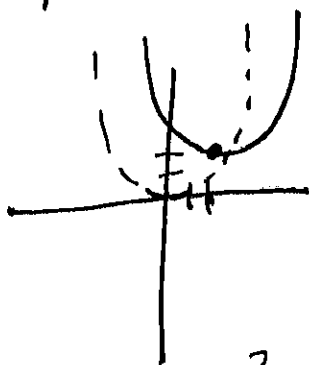
vertex (0,2)

$$y = (x-2)^2$$



vertex (2,0)

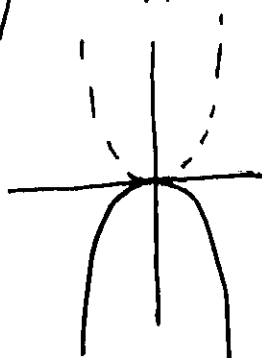
$$y = (x-2)^2 + 2$$



$\frac{2}{2}$ L(R)
(V) D

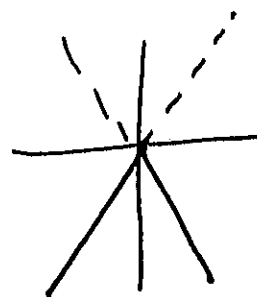
vertex (2,2)

$$y = -x^2$$

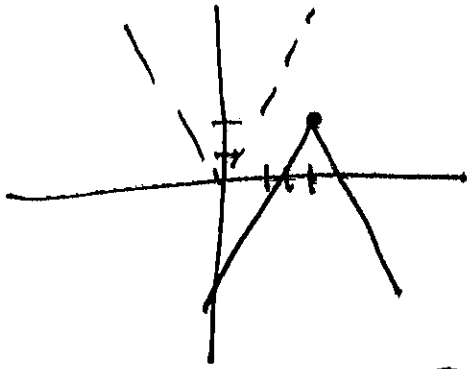


vertex (0,0)

$$y = -|x|$$

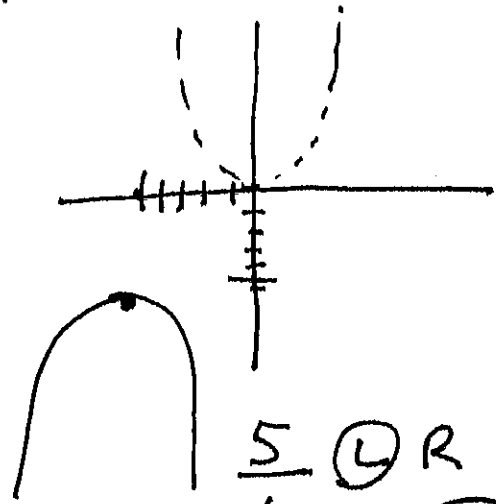


$$y = -|x-3| + 2$$



$$\begin{array}{l} \underline{3} \quad L \textcircled{R} \\ \underline{2} \quad \textcircled{U} \textcircled{D} \\ \underline{(3, 2)} \textcircled{V} \end{array}$$

$$y = -(x+5)^2 - 6$$



$$\begin{array}{l} \underline{5} \quad \textcircled{L} \textcircled{R} \\ \underline{6} \quad \textcircled{U} \textcircled{D} \\ \underline{(-5, -6)} \textcircled{\text{Vertex}} \end{array}$$

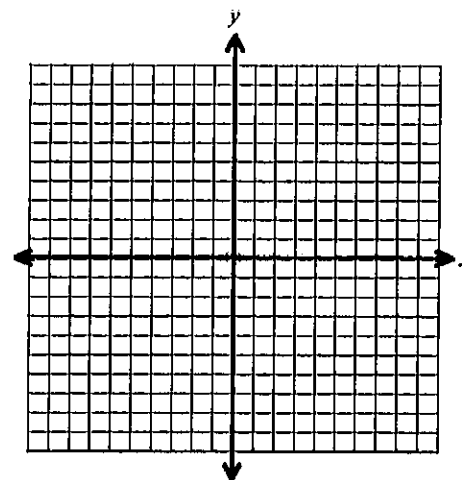
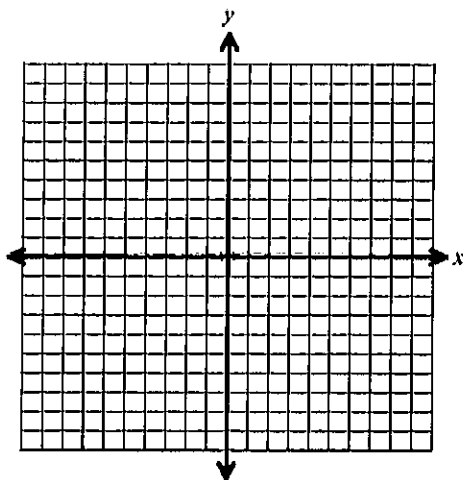
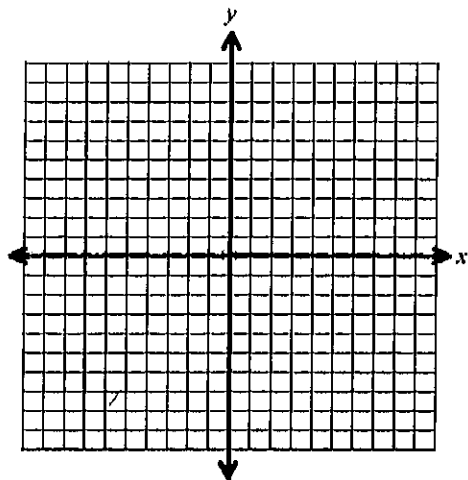
Algebra II

Part A. Graph each of the parent functions.

a) $y = x$

b) $y = |x|$

c) $y = x^2$



Determine the parent graph for each function and describe the characteristics. Graph the parent function with *dotted lines* and the given function with *solid lines*. Be exact with each graph.

1. $y = x + 3$

Parent: _____
Vertical Shift: ___ U D

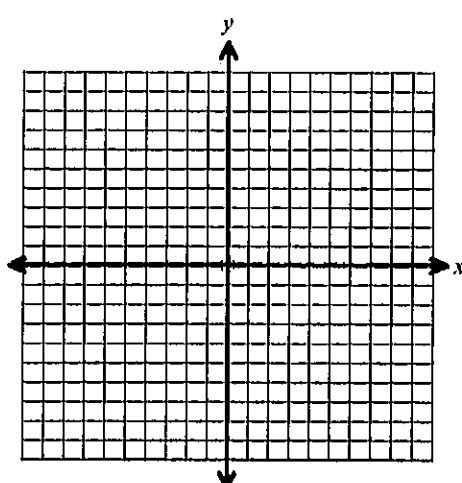
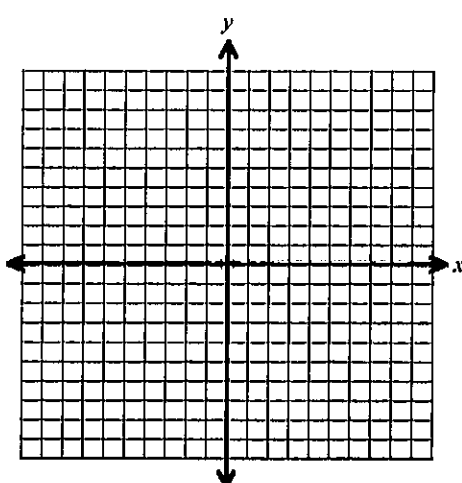
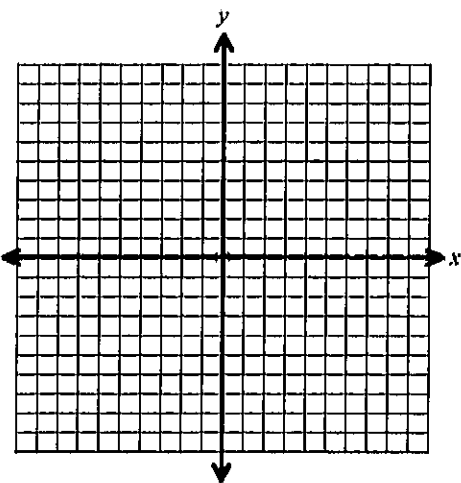
2. $y = x - 4$

Parent: _____
Vertical Shift: ___ U D

3. $y = |x + 3|$

Parent: _____
Horizontal Shift: ___ L R
Vertical Shift: ___ U D

Vertex: (,)



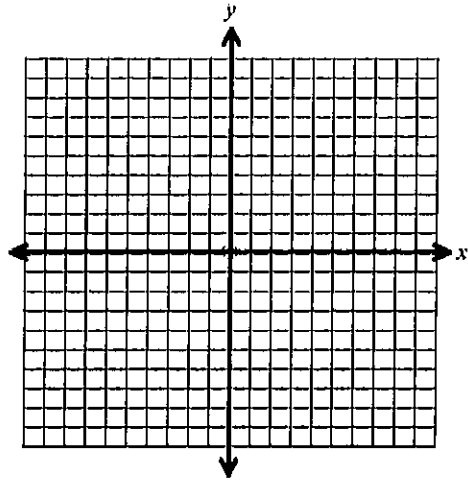
4. $y = |x - 1|$

Parent: _____

Horizontal Shift: ___ L R

Vertical Shift: ___ U D

Vertex: (,)



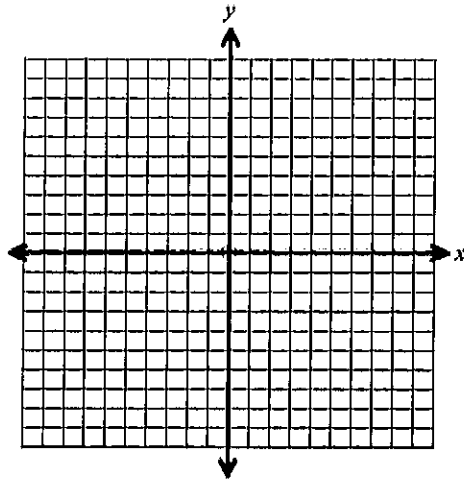
5. $y = (x + 3)^2 - 1$

Parent: _____

Horizontal Shift: ___ L R

Vertical Shift: ___ U D

Vertex: (,)



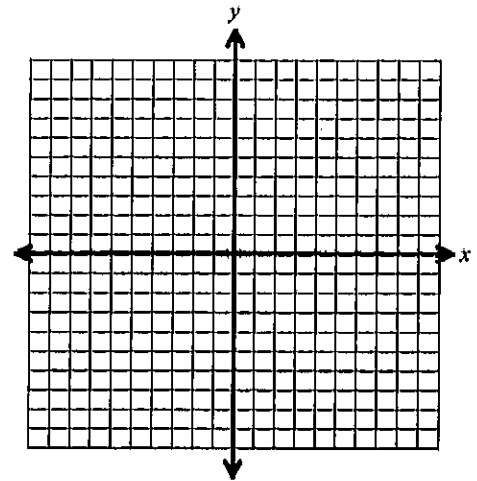
6. $y = (x - 2)^2 - 5$

Parent: _____

Horizontal Shift: ___ L R

Vertical Shift: ___ U D

Vertex: (,)



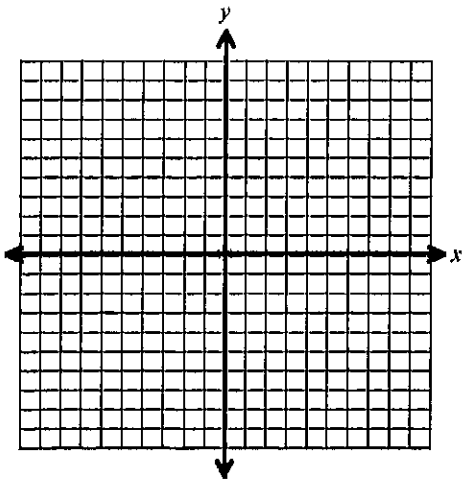
7. $y = |x| + 2$

Parent: _____

Horizontal Shift: ___ L R

Vertical Shift: ___ U D

Vertex: (,)



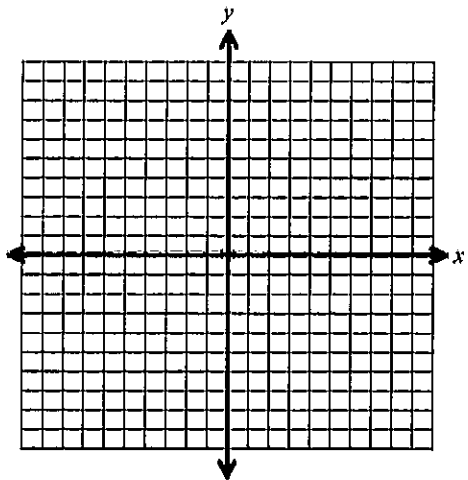
8. $y = |x + 1|$

Parent: _____

Horizontal Shift: ___ L R

Vertical Shift: ___ U D

Vertex: (,)



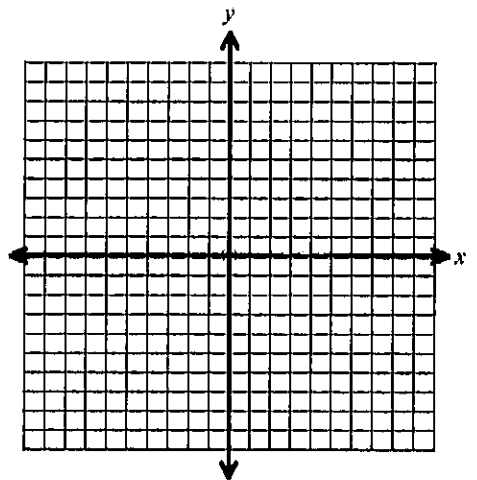
9. $y = |x + 2| - 3$

Parent: _____

Horizontal Shift: ___ L R

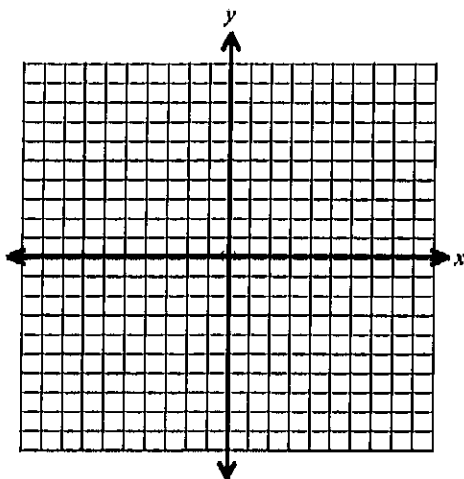
Vertical Shift: ___ U D

Vertex: (,)



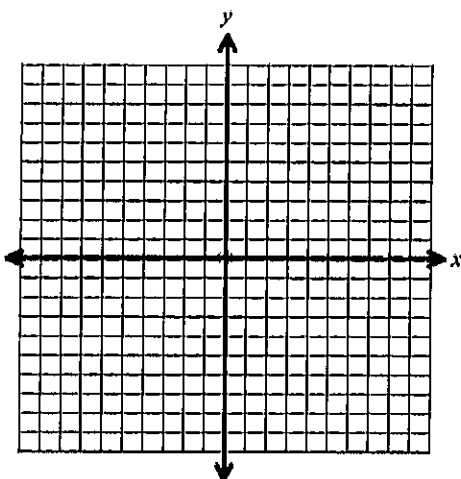
10. $y = |x+2| - 3$

Parent: _____
 Horizontal Shift: ___ L R
 Vertical Shift: ___ U D
 Vertex: (,)



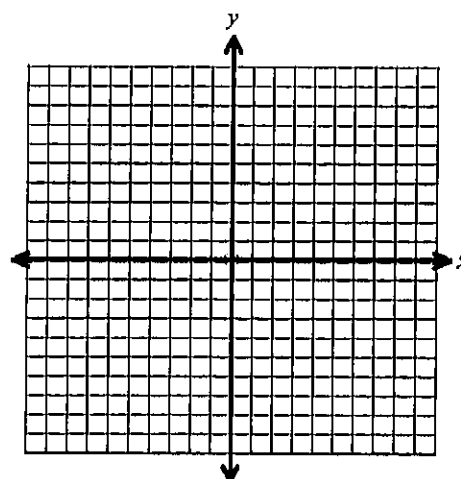
11. $y = (x-4)^2 - 1$

Parent: _____
 Horizontal Shift: ___ L R
 Vertical Shift: ___ U D
 Vertex: (,)



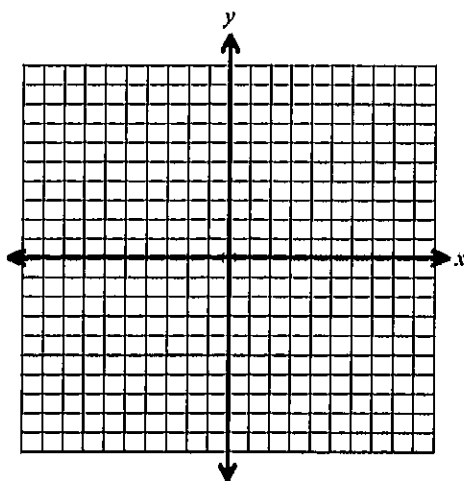
12. $y = -(x-2)^2 + 1$

Parent: _____
 Horizontal Shift: ___ L R
 Vertical Shift: ___ U D
 Vertex: (,)



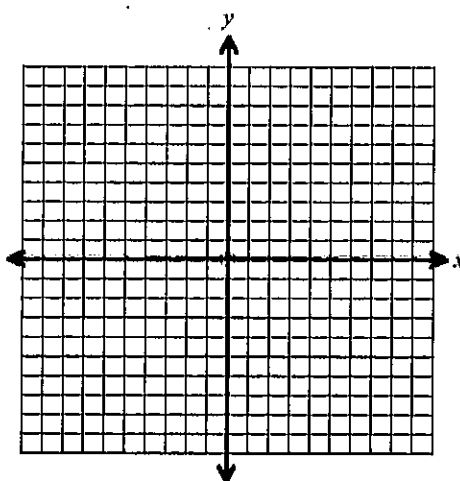
13. $y = -|x|$

Parent: _____
 Horizontal Shift: ___ L R
 Vertical Shift: ___ U D
 Vertex: (,)



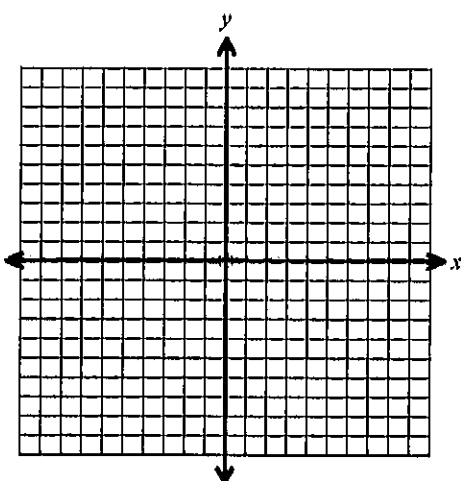
14. $y = x^2 - 1$

Parent: _____
 Horizontal Shift: ___ L R
 Vertical Shift: ___ U D
 Vertex: (,)



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

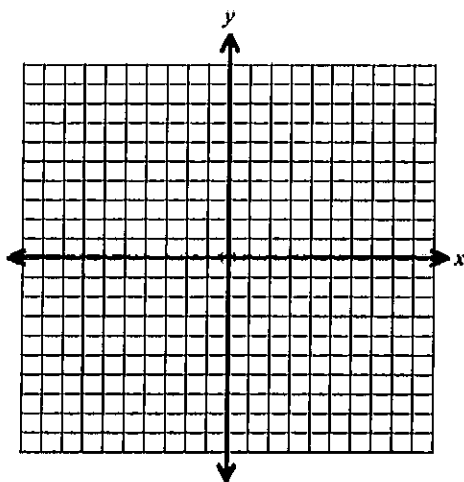
Parent: _____
 Horizontal Shift: ___ L R
 Vertical Shift: ___ U D
 Vertex: (,)



16. $y = |x| - 4$

Parent: _____
Horizontal Shift: ___ L R
Vertical Shift: ___ U D

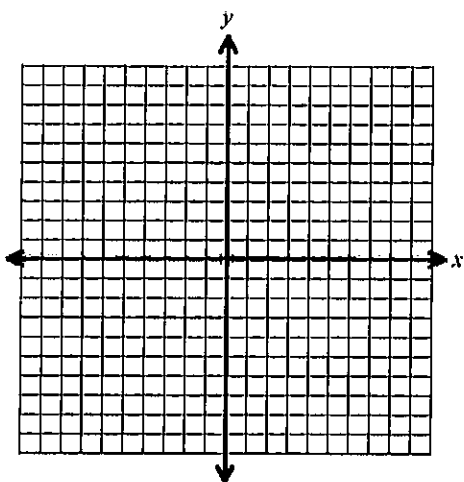
Vertex: (,)



17. $y = -(x+5)^2 - 1$

Parent: _____
Horizontal Shift: ___ L R
Vertical Shift: ___ U D

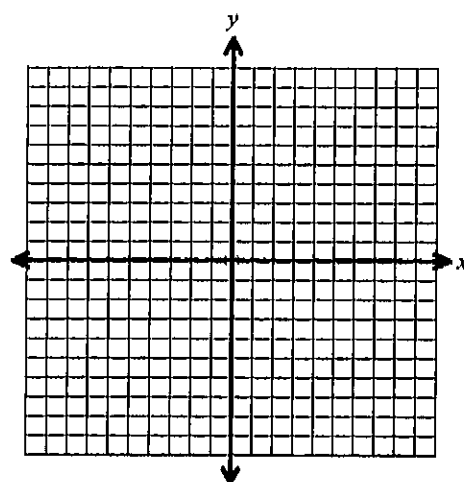
Vertex: (,)



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

Parent: _____
Horizontal Shift: ___ L R
Vertical Shift: ___ U D

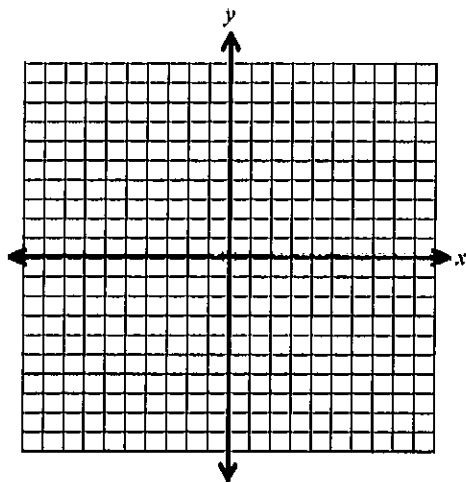
Vertex: (,)



19. $y = -|x-1| + 2$

Parent: _____
Horizontal Shift: ___ L R
Vertical Shift: ___ U D

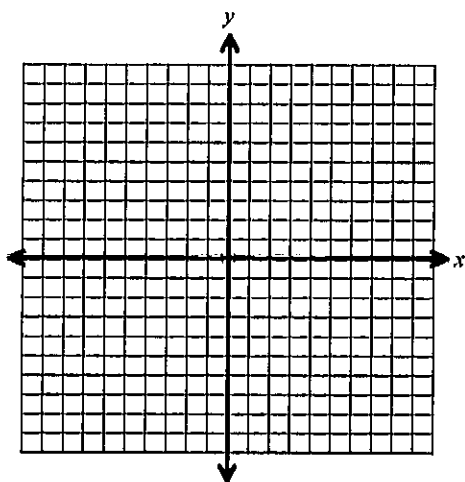
Vertex: (,)



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

Parent: _____
Horizontal Shift: ___ L R
Vertical Shift: ___ U D

Vertex: (,)



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

Parent: _____
Horizontal Shift: ___ L R
Vertical Shift: ___ U D

Vertex: (,)

