

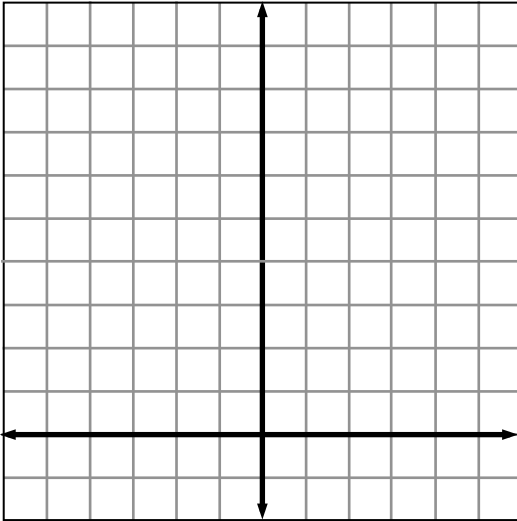
5.1 Characteristics of Parabolas Name _____

Determine the vertex, the axis of symmetry, and the graph of each equation

1. $y = x^2 - 1$

vertex:

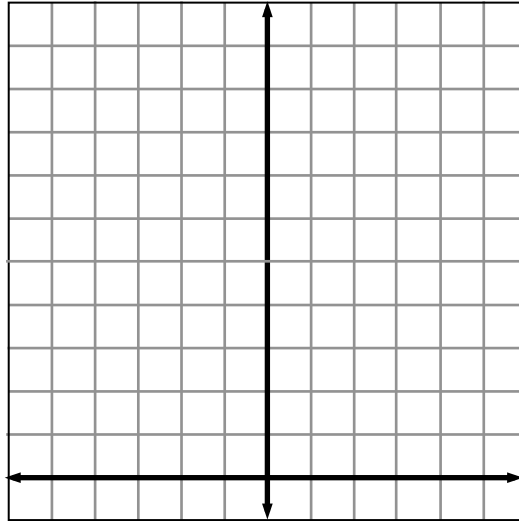
axis:



2. $y = x^2 + 2$

vertex:

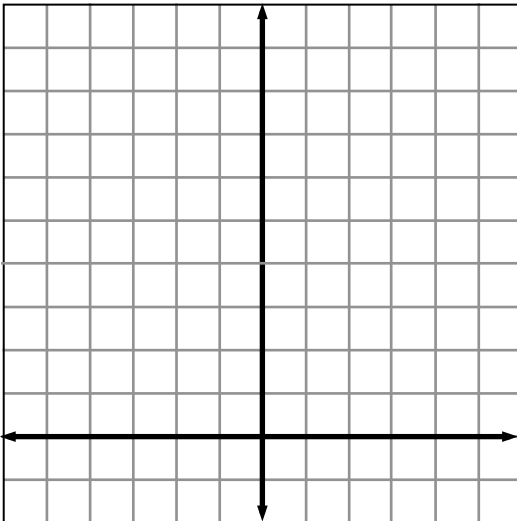
axis:



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

vertex:

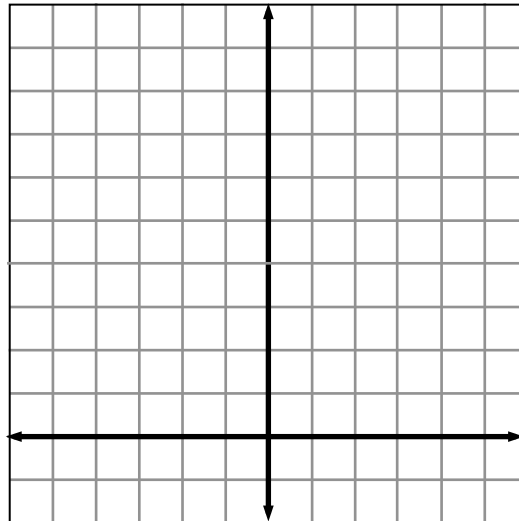
axis:



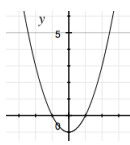
4. $y = (x - 1)^2$

vertex:

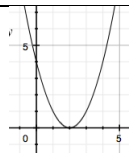
axis:



Answers: 1. $(0, -1), x = 0,$



; 3. $(2, 0), x = 2,$

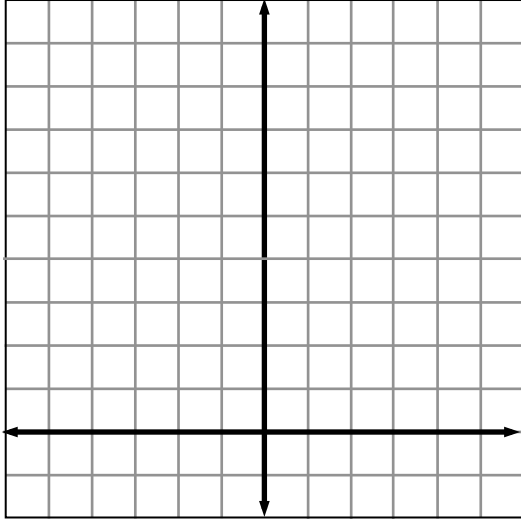


Determine the vertex, the axis of symmetry, and the graph of each equation

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

vertex:

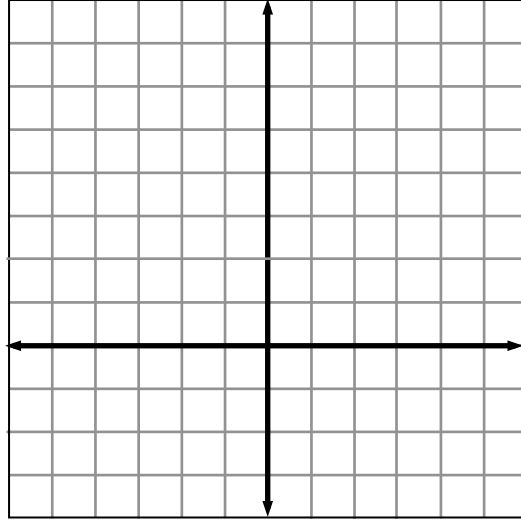
axis:



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

vertex:

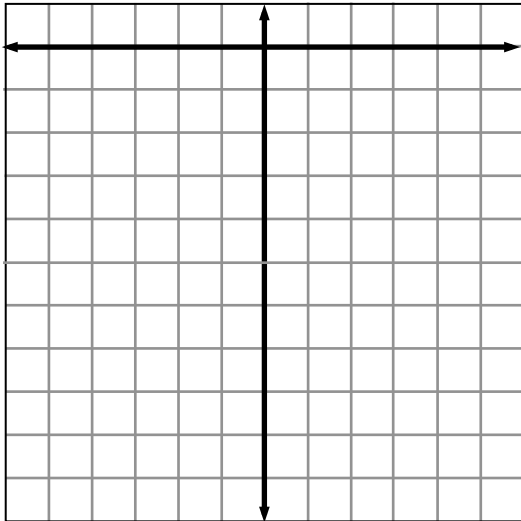
axis:



7. $y = -x^2 - 1$

vertex:

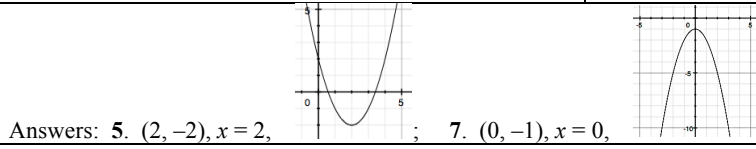
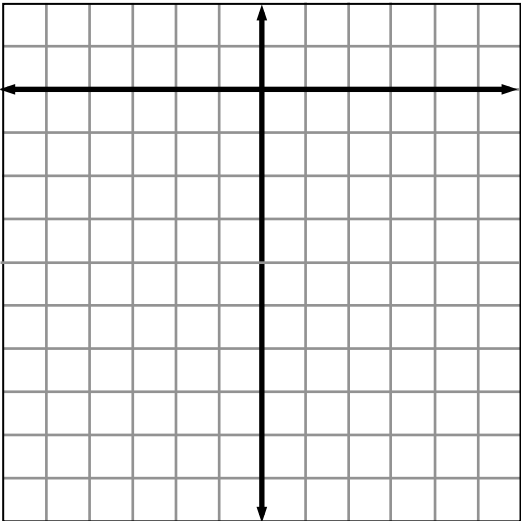
axis:



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

vertex:

axis:

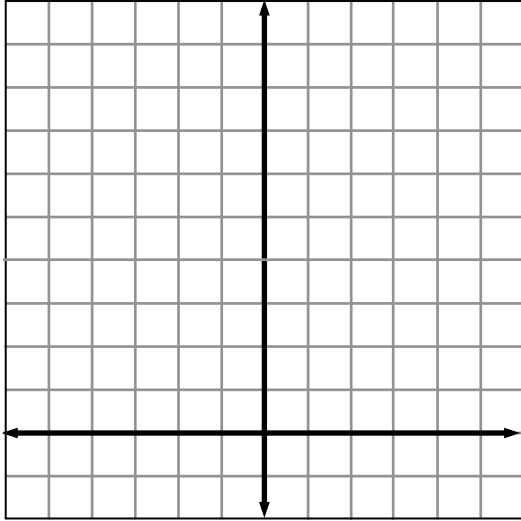


Solve and graph the solution set.

9. $y = \frac{1}{2}x^2$

vertex:

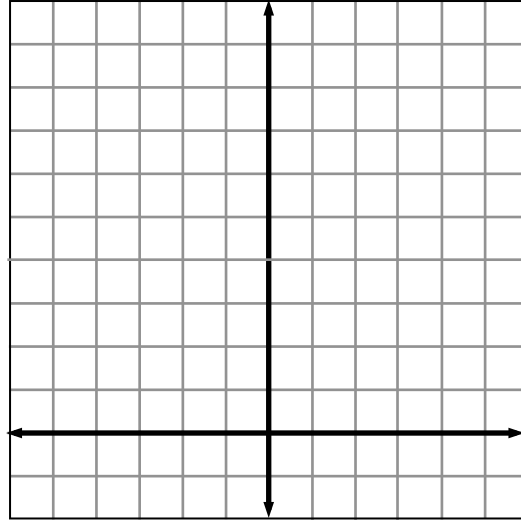
axis:



10. $y = \frac{1}{4}x^2$

vertex:

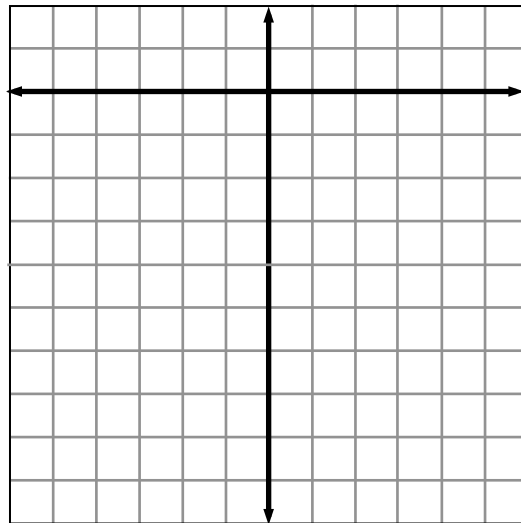
axis:



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

vertex:

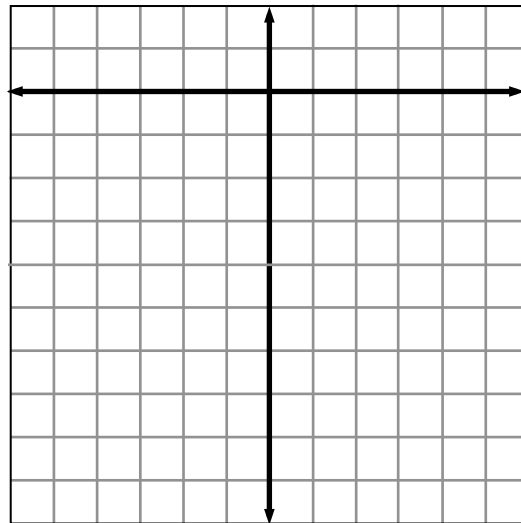
axis:



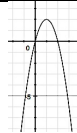
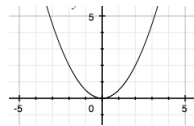
12. $y = -2(x + 1)^2 + 1$

vertex:

axis:



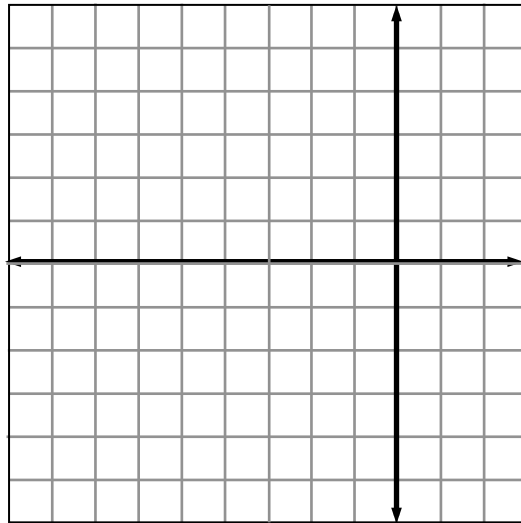
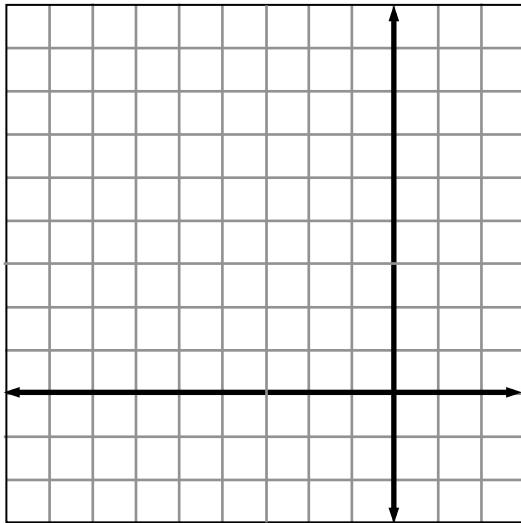
Answers: 9. $(0, 0)$, $x = 0$, ; 11. $(1, 2)$, $x = 1$,



Write each equation in the form $y = a(x - h)^2 + k$ by completing the square. Then graph the parabola.

13. $y = x^2 + 10x + 24$

14. $y = x^2 + 8x + 10$



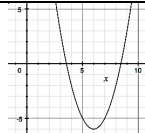
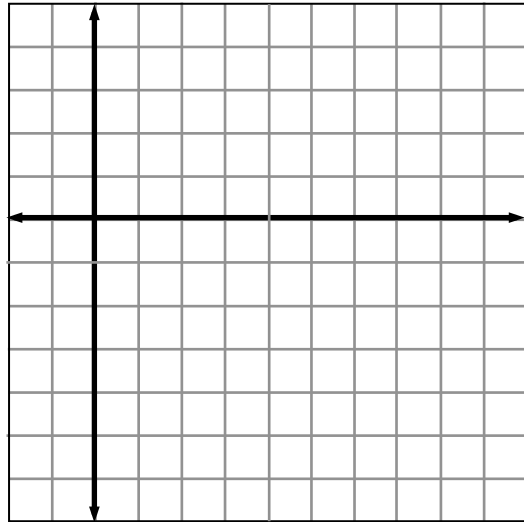
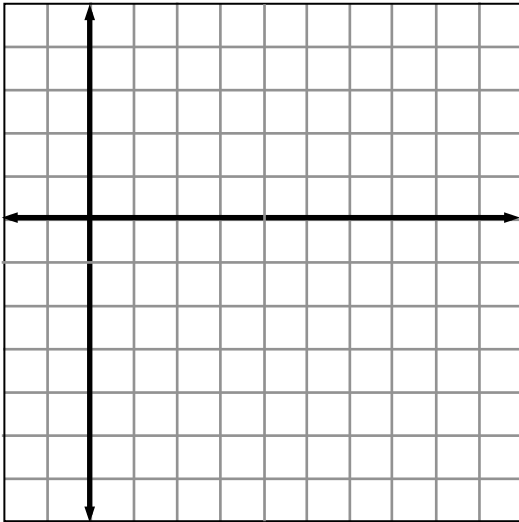
Answer: 13. Vertex: $(-5, -1)$



Change the equation to the form $y = a(x - h)^2 + k$ by completing the square. Then graph the parabola.

15. $y = x^2 - 12x + 30$

16. $y = x^2 - 4x - 1$



Answer: 15. Vertex: $(6, -6)$,