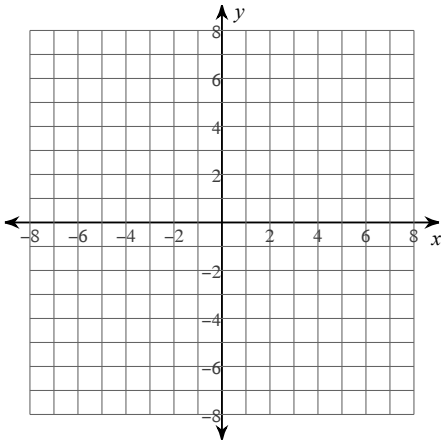


Assignment

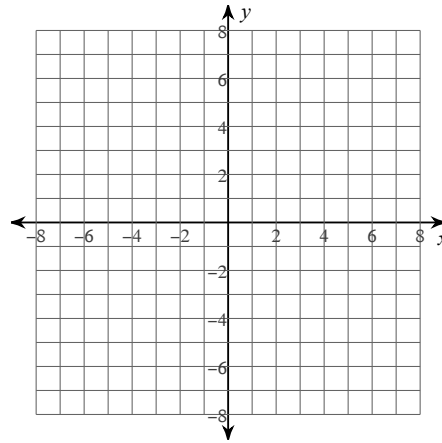
Date _____ Period _____

Identify the vertex and axis of symmetry of each. Then sketch the graph.

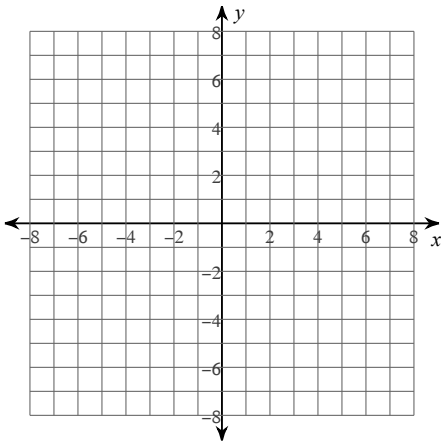
1) $y = (x - 5)^2 - 5$



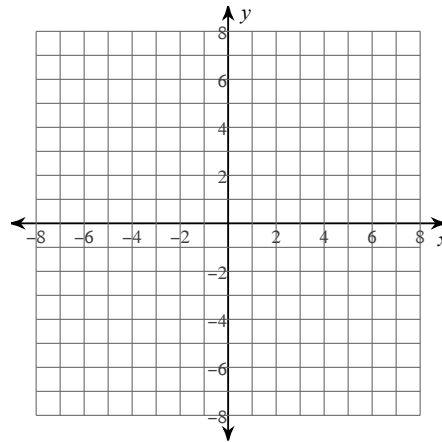
2) $y = (x + 5)^2 - 2$



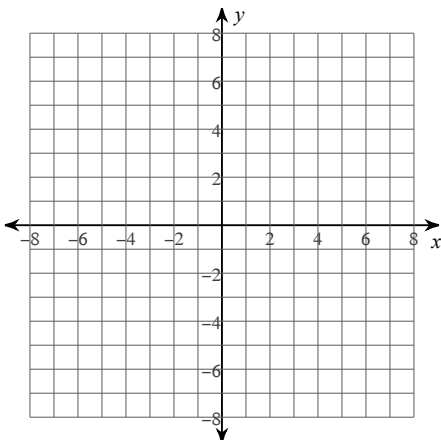
3) $y = (x - 4)^2 + 2$



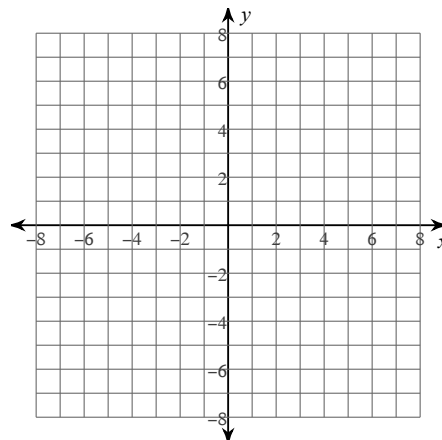
4) $y = 3(x - 1)^2 - 6$



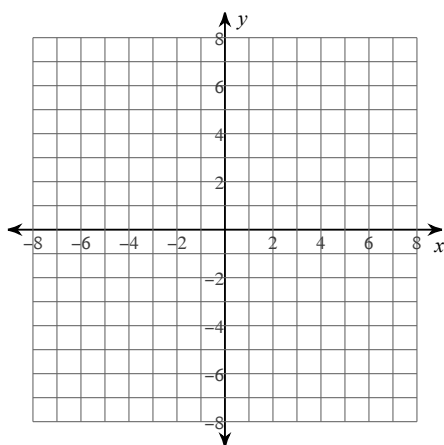
5) $y = (x + 1)^2 + 3$



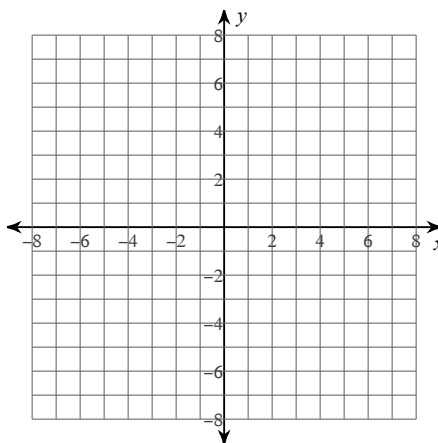
6) $y = -3(x + 6)^2 - 4$



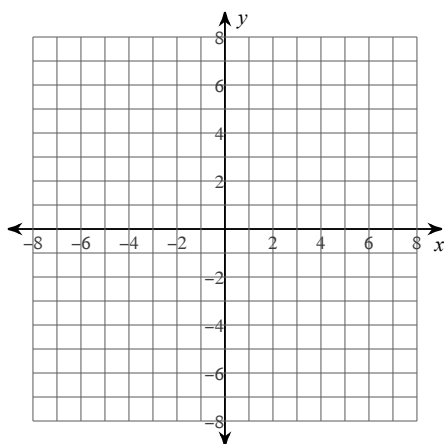
$$7) y = -2(x + 5)^2 - 5$$



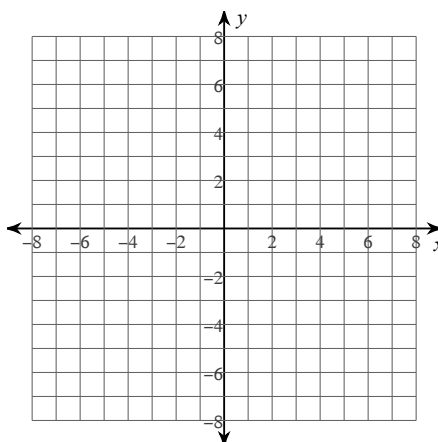
$$8) y = -\frac{1}{4}(x - 5)^2 + 1$$



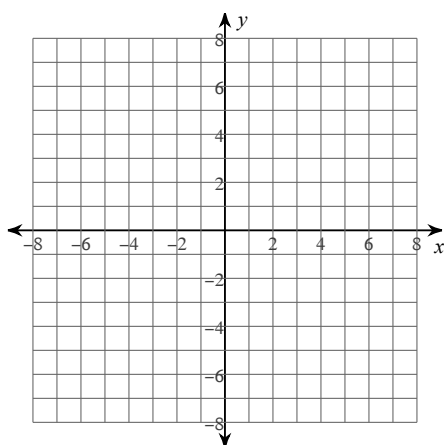
$$9) y = -2(x - 2)^2 - 3$$



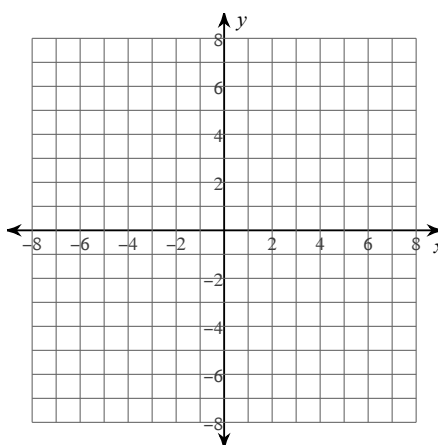
$$10) y = \frac{1}{3}(x + 4)^2 + 5$$



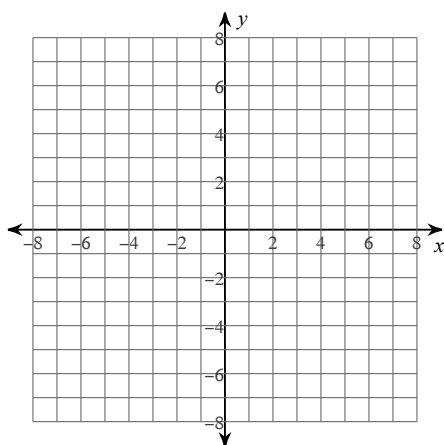
$$11) y = -(x - 3)^2 - 4$$



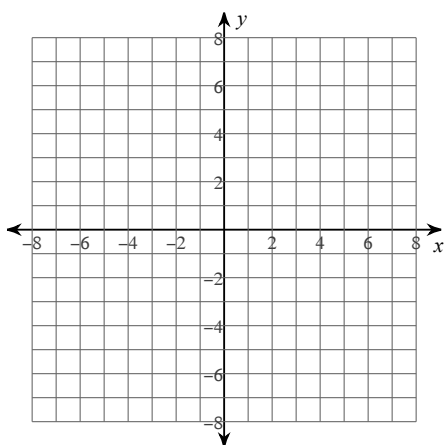
$$12) y = -(x + 1)^2 + 2$$



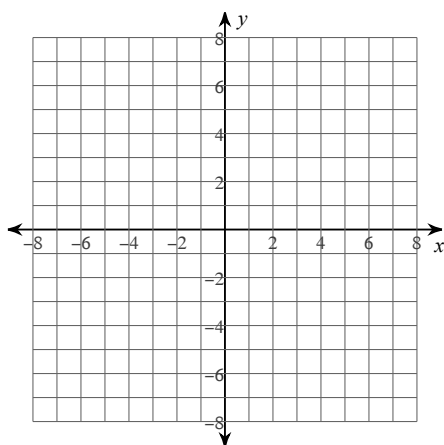
$$13) y = 2(x + 4)^2 - 4$$



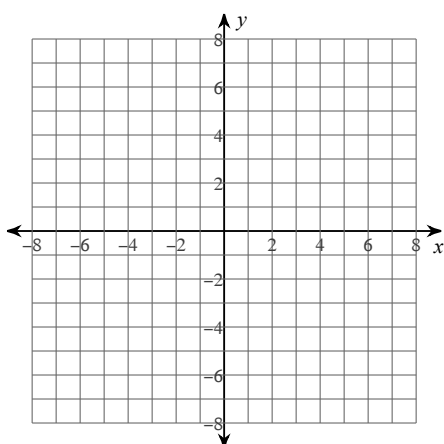
$$14) y = 2(x + 5)^2 - 1$$



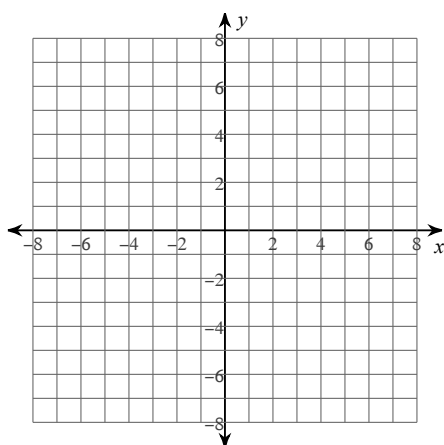
$$15) y = -(x + 1)^2 - 3$$



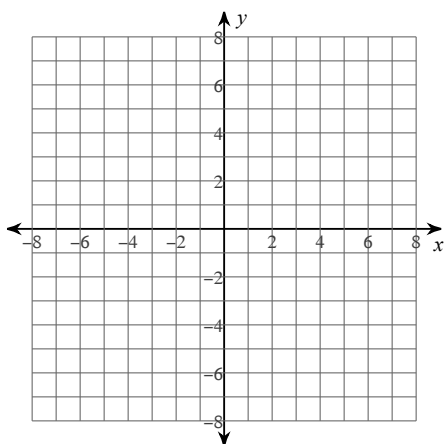
$$16) y = \frac{1}{3}(x + 4)^2 - 3$$



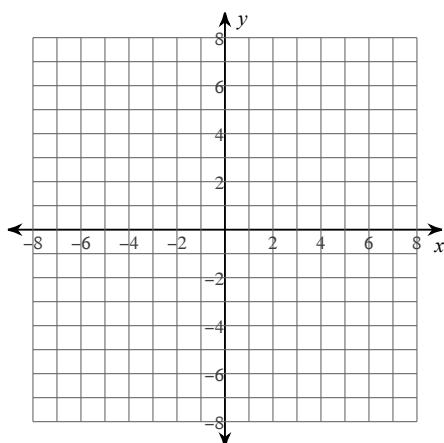
$$17) y = \frac{1}{4}(x - 2)^2 - 6$$



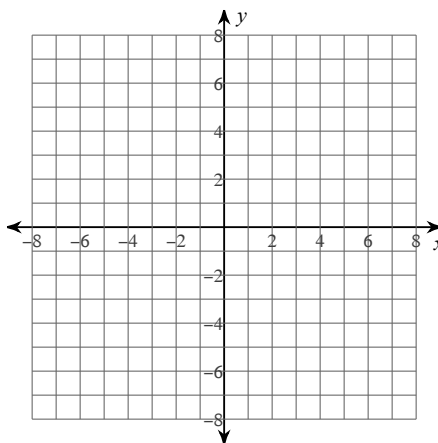
$$18) y = -(x + 2)^2 - 5$$



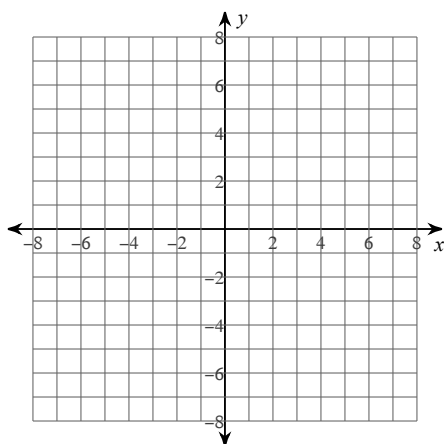
$$19) y = -(x - 1)^2 + 3$$



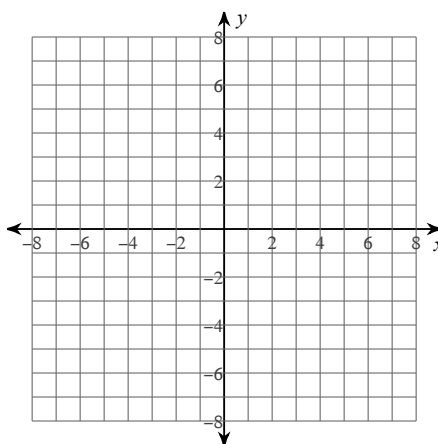
$$20) y = -\frac{1}{3}(x + 5)^2 - 1$$



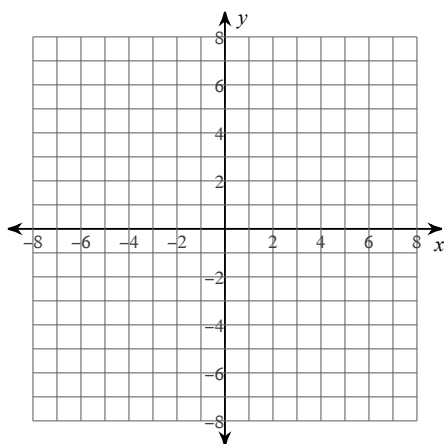
$$21) y = -(x + 5)^2 - 1$$



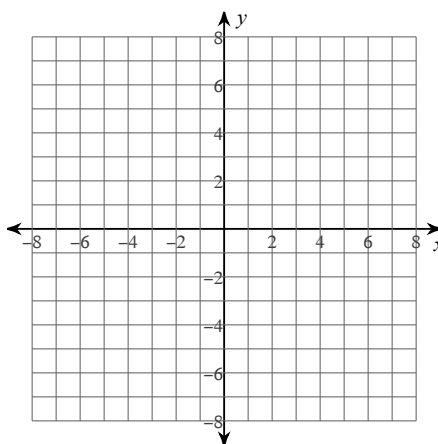
$$22) y = 2(x + 3)^2 - 3$$



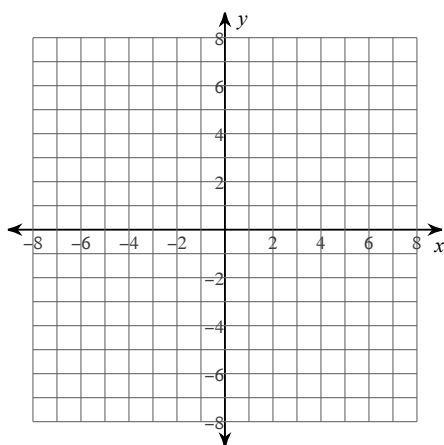
$$23) y = -(x + 4)^2 - 1$$



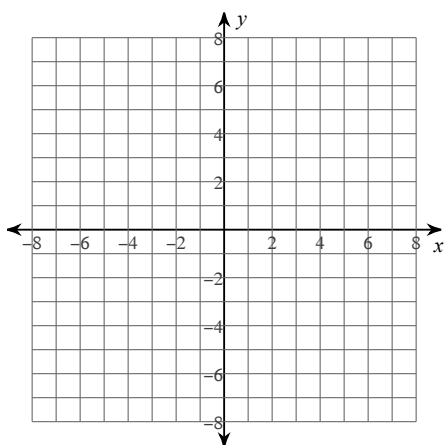
$$24) y = (x + 1)^2$$



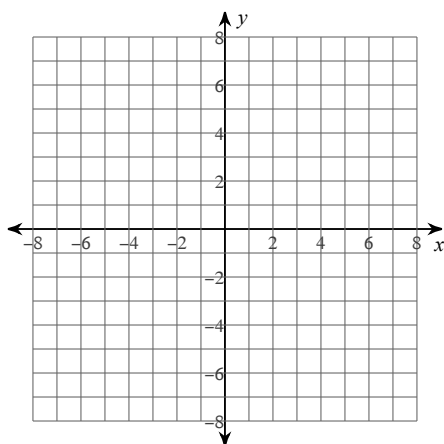
$$25) y = (x - 3)^2 + 1$$



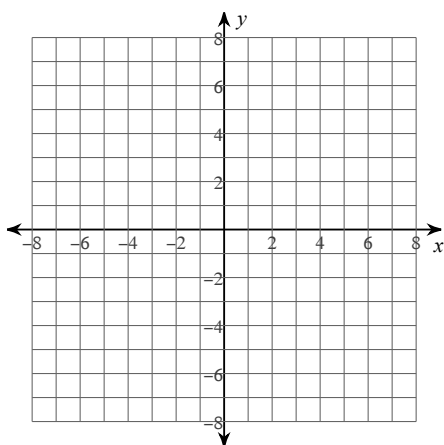
$$26) y = -2(x + 5)^2 - 1$$



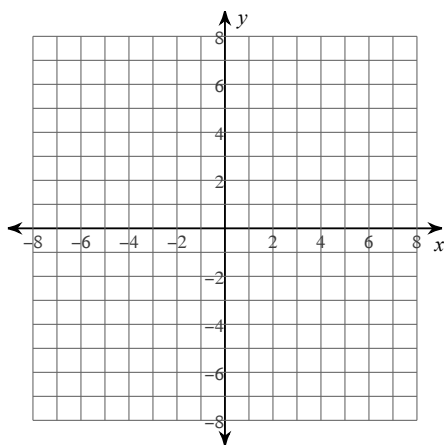
$$27) y = -\frac{1}{2}(x + 1)^2 + 6$$



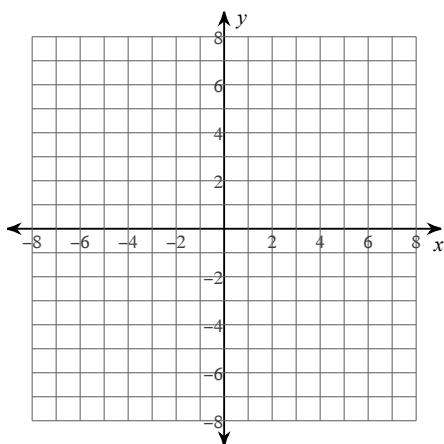
$$28) y = -(x + 1)^2 - 4$$



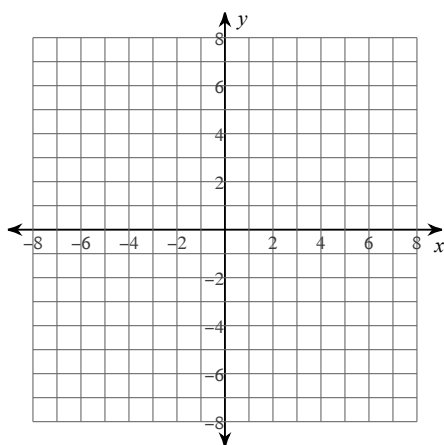
$$29) y = \frac{1}{3}(x + 3)^2 + 3$$



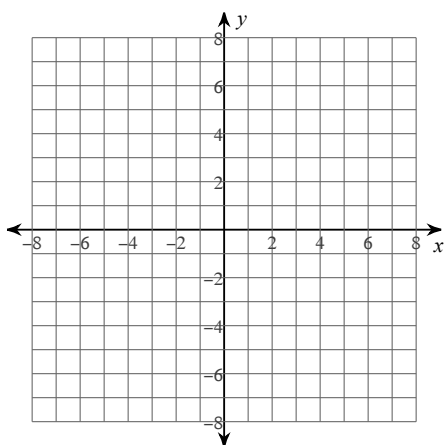
$$30) y = -2x^2 - 3$$



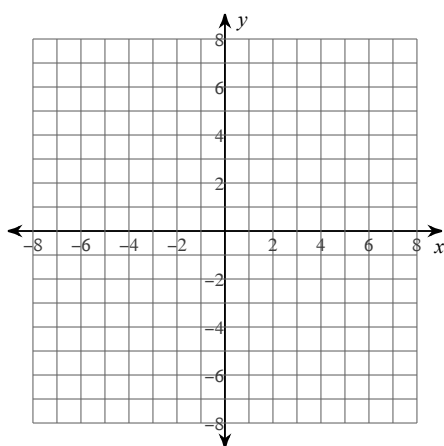
$$31) y = (x + 3)^2 - 3$$



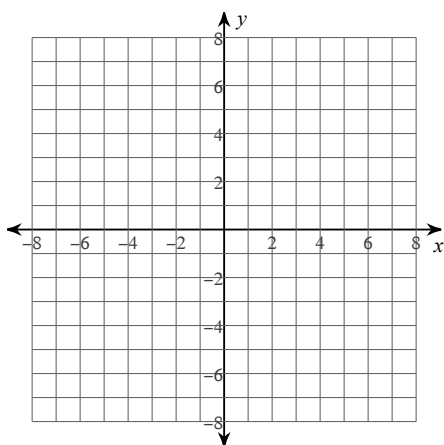
$$32) y = 2(x + 3)^2 - 2$$



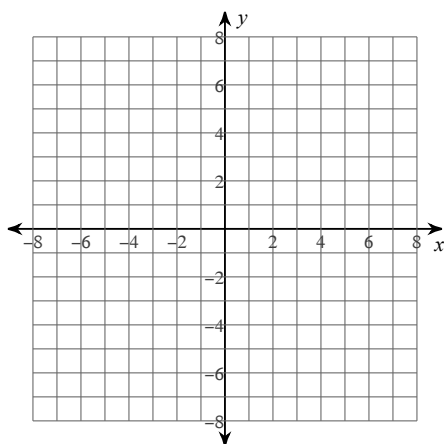
$$33) y = \frac{1}{4}(x + 6)^2 - 6$$



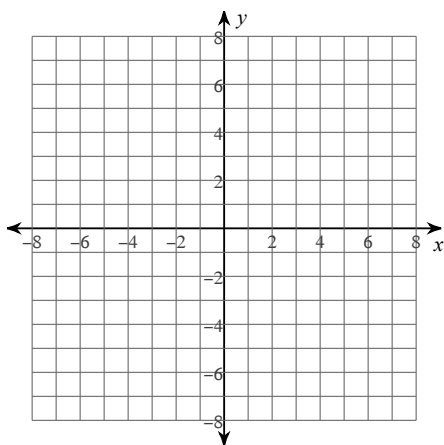
$$34) y = -(x - 5)^2 - 6$$



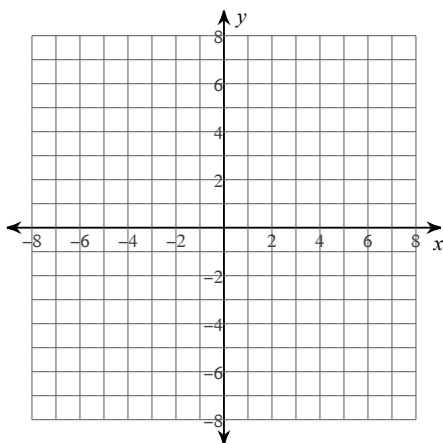
$$35) y = (x + 2)^2 + 1$$



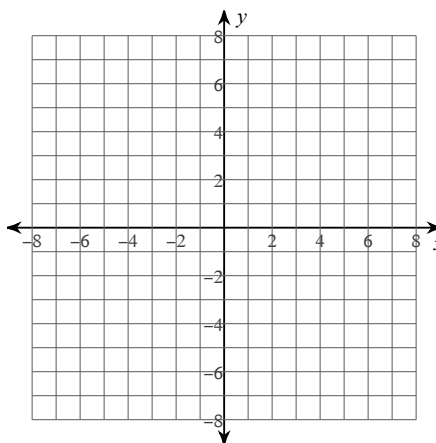
$$36) y = \frac{1}{3}(x + 1)^2 + 3$$



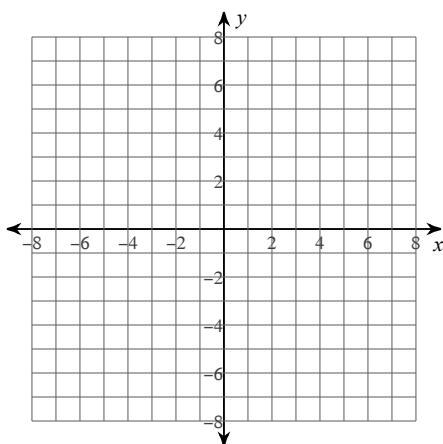
$$37) y = 2(x + 5)^2 - 6$$



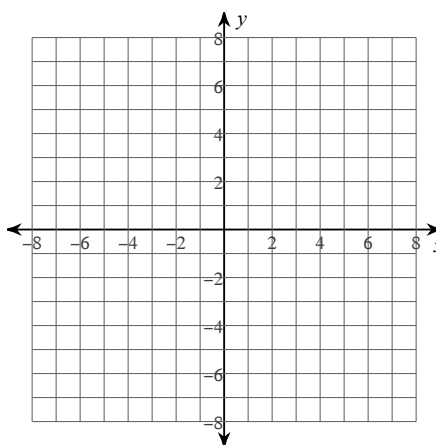
$$38) y = (x + 5)^2 - 3$$



$$39) y = \frac{2}{3}(x - 1)^2$$



$$40) y = -(x + 6)^2 - 5$$



Solve each equation by completing the square.

$$41) x^2 + 16x - 80 = 0$$

$$42) n^2 - 12n - 45 = 0$$

$$43) m^2 - 4m - 5 = 0$$

$$44) n^2 - 8n - 65 = 0$$

$$45) x^2 - 20x - 21 = 0$$

$$46) r^2 - 2r - 24 = 0$$

$$47) m^2 + 20m + 75 = 0$$

$$48) m^2 - 14m - 95 = 0$$

$$49) x^2 - 2x - 48 = 0$$

$$50) x^2 + 8x - 65 = 0$$

$$51) b^2 + 4b - 12 = 0$$

$$52) x^2 + 12x - 28 = 0$$

$$53) b^2 + 2b - 24 = 0$$

$$54) n^2 + 14n + 33 = 0$$

$$55) n^2 - 14n + 48 = 0$$

$$56) x^2 + 18x + 65 = 0$$

$$57) x^2 + 20x + 84 = 0$$

$$58) 8x^2 + 16x - 90 = 0$$

$$59) 5v^2 - 20v - 25 = 0$$

$$60) 7k^2 - 14k - 21 = 0$$

$$61) 3a^2 - 18a - 81 = 0$$

$$62) 8n^2 + 16n + 6 = 0$$

$$63) 4x^2 - 16x - 65 = 0$$

$$64) 7p^2 + 14p - 21 = 0$$

$$65) 8b^2 - 16b - 90 = 0$$

$$66) 6x^2 + 12x - 18 = 0$$

$$67) 10x^2 + 20x - 30 = 0$$

$$68) 4a^2 - 16a + 12 = 0$$

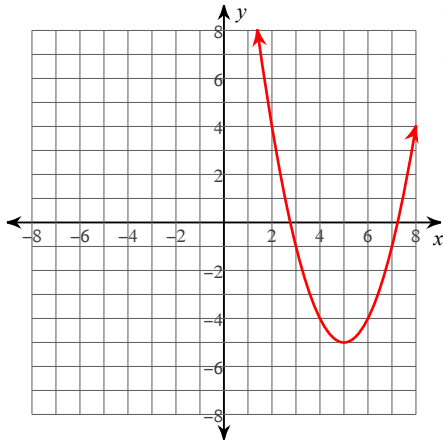
$$69) 5v^2 - 20v + 15 = 0$$

$$70) 6n^2 - 12n - 18 = 0$$

Assignment

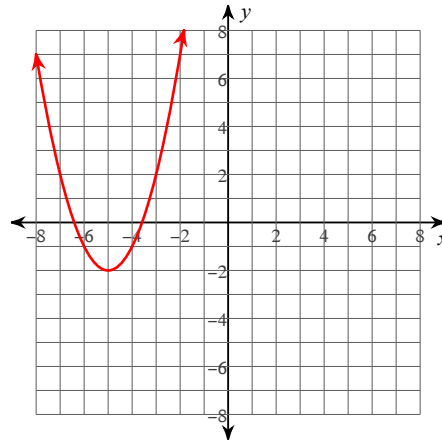
Identify the vertex and axis of symmetry of each. Then sketch the graph.

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



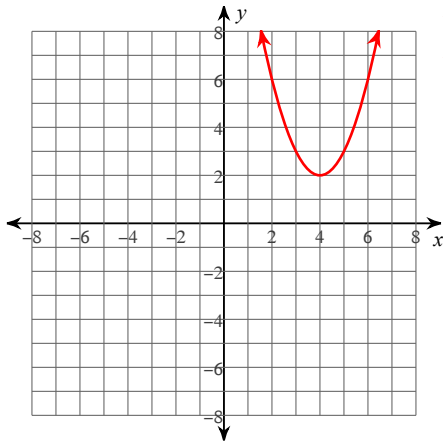
Vertex: (5, -5)
Axis of Sym.: $x = 5$

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



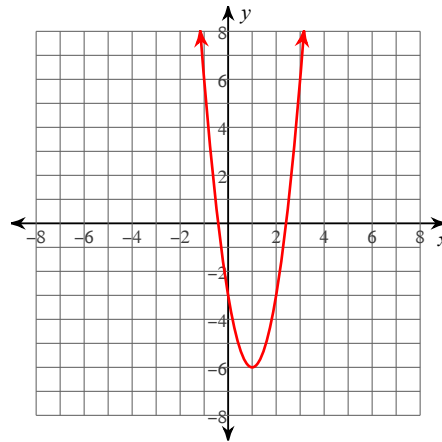
Vertex: (-5, -2)
Axis of Sym.: $x = -5$

3) $y = (x - 4)^2 + 2$



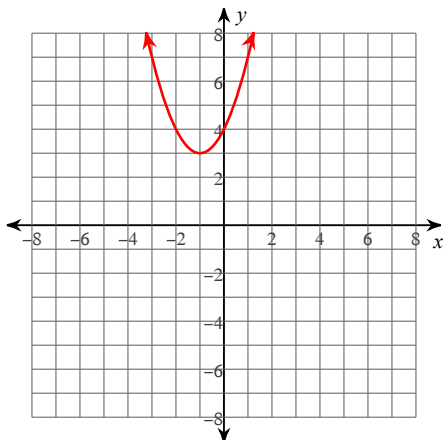
Vertex: (4, 2)
Axis of Sym.: $x = 4$

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



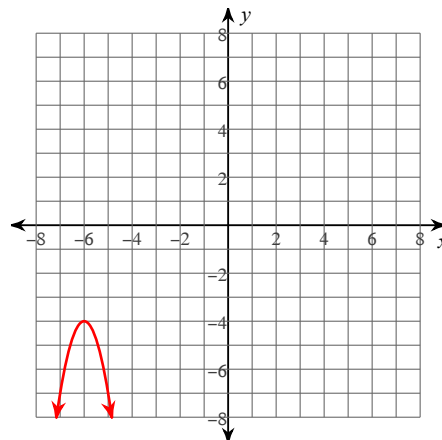
Vertex: (1, -6)
Axis of Sym.: $x = 1$

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



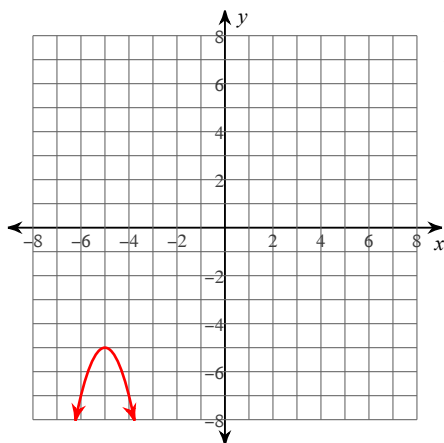
Vertex: (-1, 3)
Axis of Sym.: $x = -1$

6) $y = -3(x + 6)^2 - 4$



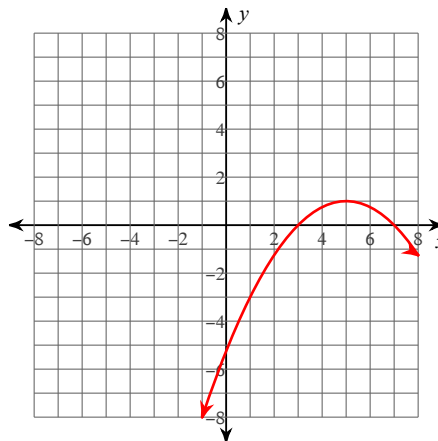
Vertex: (-6, -4)
Axis of Sym.: $x = -6$

$$7) y = -2(x + 5)^2 - 5$$



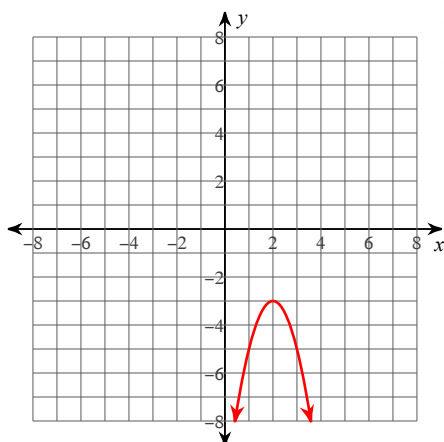
Vertex: $(-5, -5)$
Axis of Sym.: $x = -5$

$$8) y = -\frac{1}{4}(x - 5)^2 + 1$$



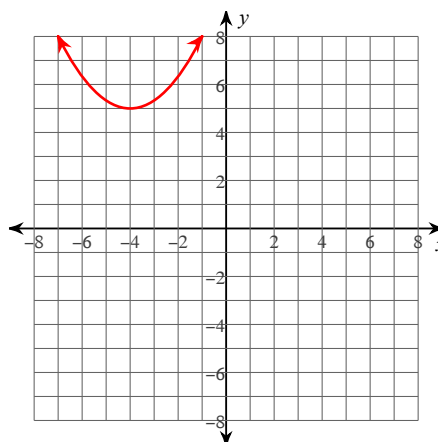
Vertex: $(5, 1)$
Axis of Sym.: $x = 5$

$$9) y = -2(x - 2)^2 - 3$$



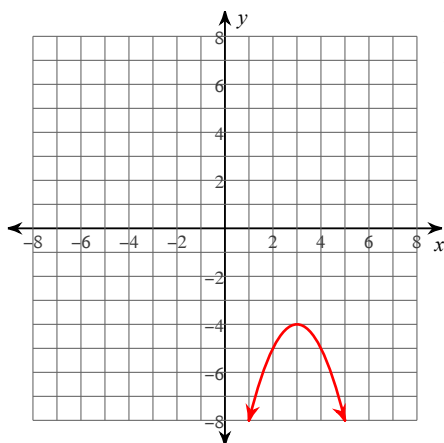
Vertex: $(2, -3)$
Axis of Sym.: $x = 2$

$$10) y = \frac{1}{3}(x + 4)^2 + 5$$



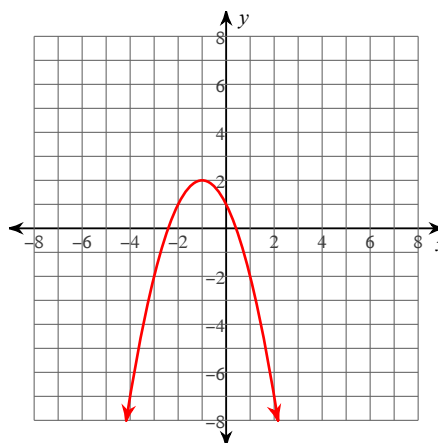
Vertex: $(-4, 5)$
Axis of Sym.: $x = -4$

$$11) y = -(x - 3)^2 - 4$$



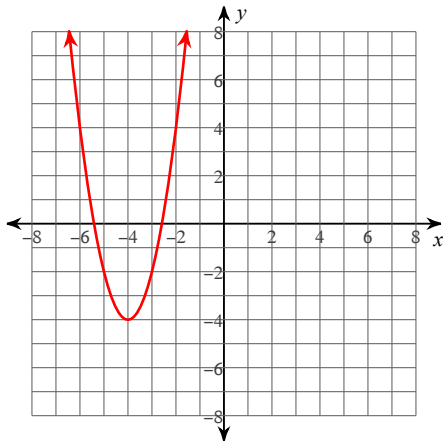
Vertex: $(3, -4)$
Axis of Sym.: $x = 3$

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



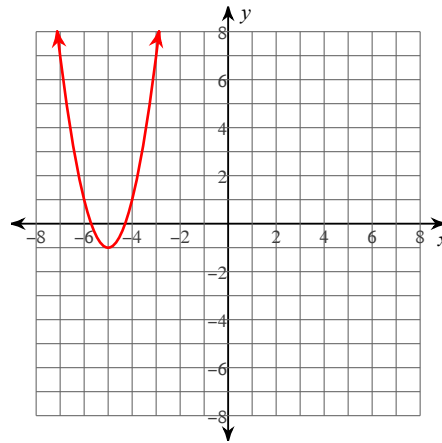
Vertex: $(-1, 2)$
Axis of Sym.: $x = -1$

$$13) y = 2(x + 4)^2 - 4$$



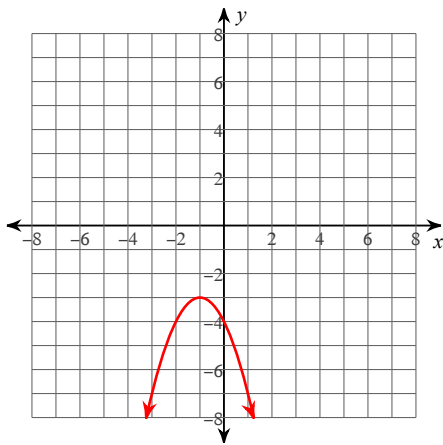
Vertex: $(-4, -4)$
Axis of Sym.: $x = -4$

$$14) y = 2(x + 5)^2 - 1$$



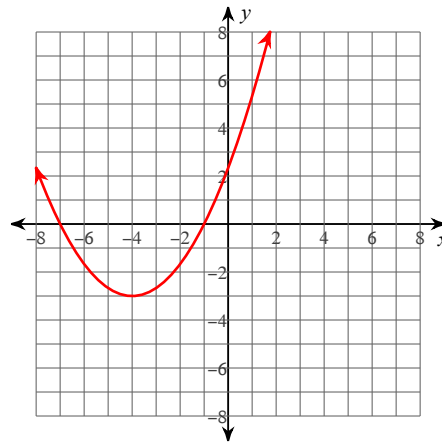
Vertex: $(-5, -1)$
Axis of Sym.: $x = -5$

$$15) y = -(x + 1)^2 - 3$$



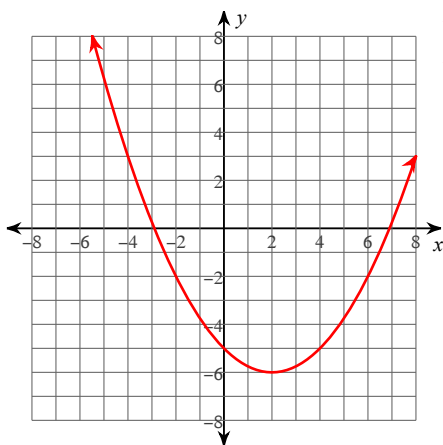
Vertex: $(-1, -3)$
Axis of Sym.: $x = -1$

$$16) y = \frac{1}{3}(x + 4)^2 - 3$$



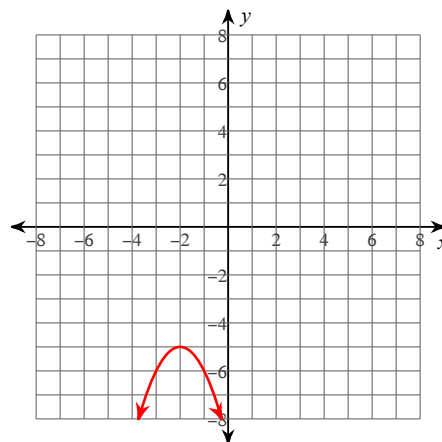
Vertex: $(-4, -3)$
Axis of Sym.: $x = -4$

$$17) y = \frac{1}{4}(x - 2)^2 - 6$$



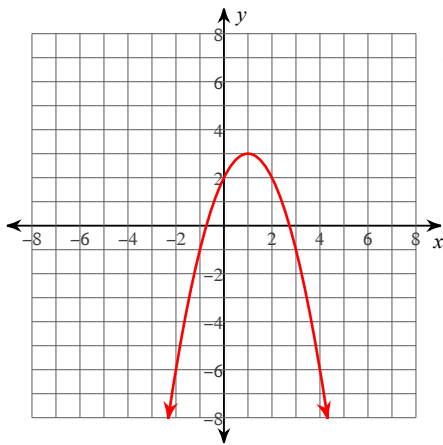
Vertex: $(2, -6)$
Axis of Sym.: $x = 2$

$$18) y = -(x + 2)^2 - 5$$



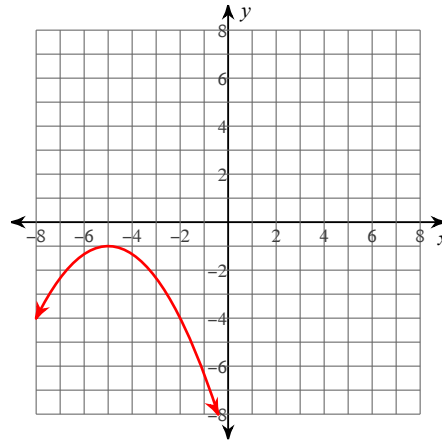
Vertex: $(-2, -5)$
Axis of Sym.: $x = -2$

$$19) y = -(x - 1)^2 + 3$$



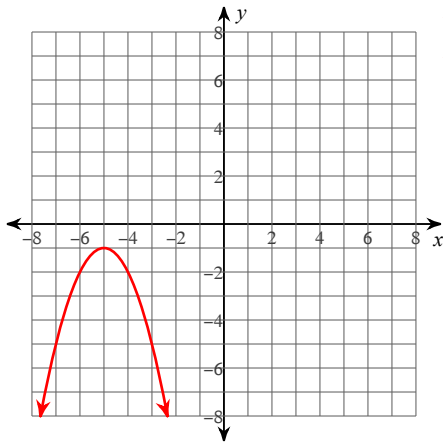
Vertex: (1, 3)
Axis of Sym.: $x = 1$

$$20) y = -\frac{1}{3}(x + 5)^2 - 1$$



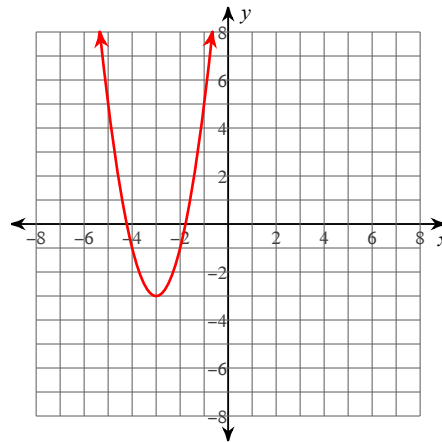
Vertex: (-5, -1)
Axis of Sym.: $x = -5$

$$21) y = -(x + 5)^2 - 1$$



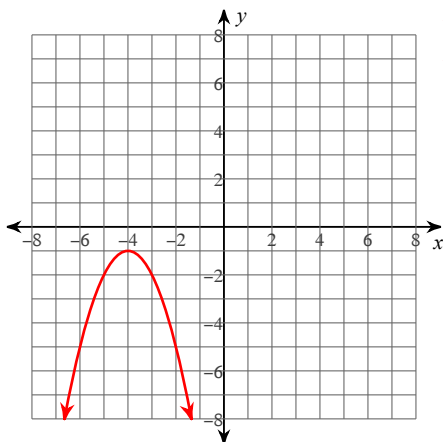
Vertex: (-5, -1)
Axis of Sym.: $x = -5$

$$22) y = 2(x + 3)^2 - 3$$



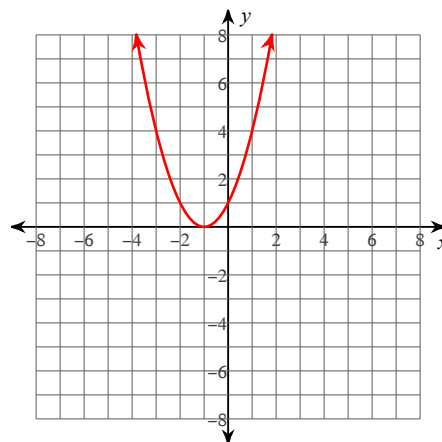
Vertex: (-3, -3)
Axis of Sym.: $x = -3$

$$23) y = -(x + 4)^2 - 1$$



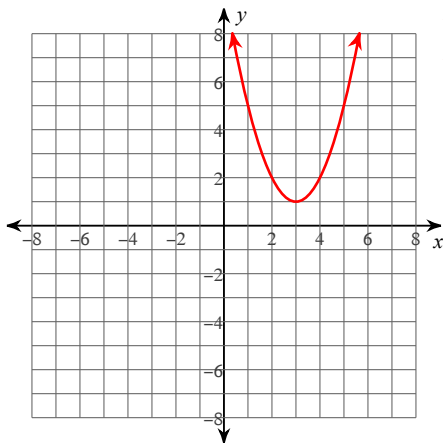
Vertex: (-4, -1)
Axis of Sym.: $x = -4$

$$24) y = (x + 1)^2$$



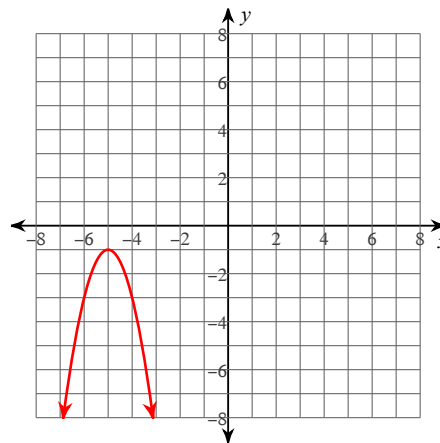
Vertex: (-1, 0)
Axis of Sym.: $x = -1$

$$25) y = (x - 3)^2 + 1$$



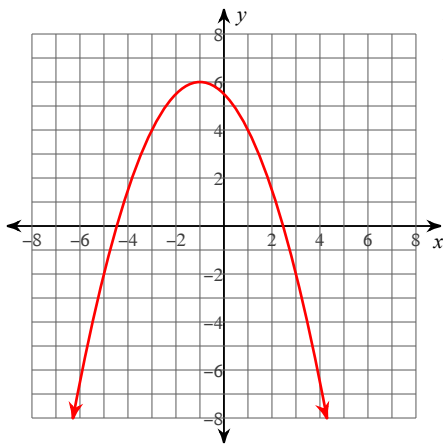
Vertex: (3, 1)
Axis of Sym.: $x = 3$

$$26) y = -2(x + 5)^2 - 1$$



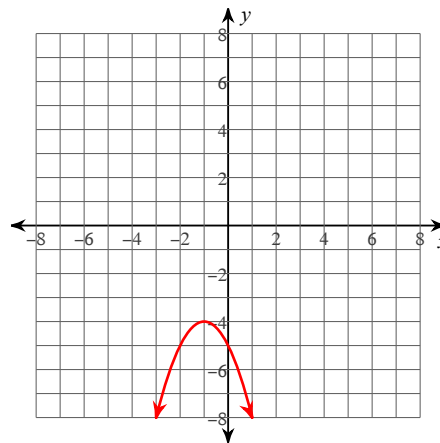
Vertex: (-5, -1)
Axis of Sym.: $x = -5$

$$27) y = -\frac{1}{2}(x + 1)^2 + 6$$



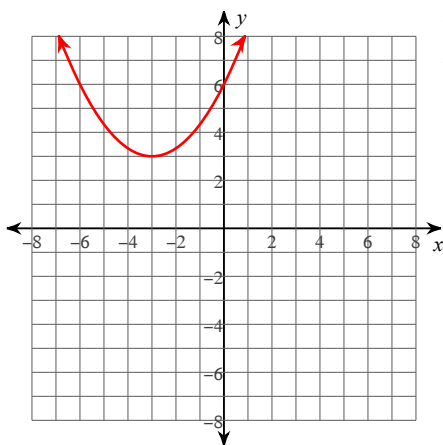
Vertex: (-1, 6)
Axis of Sym.: $x = -1$

$$28) y = -(x + 1)^2 - 4$$



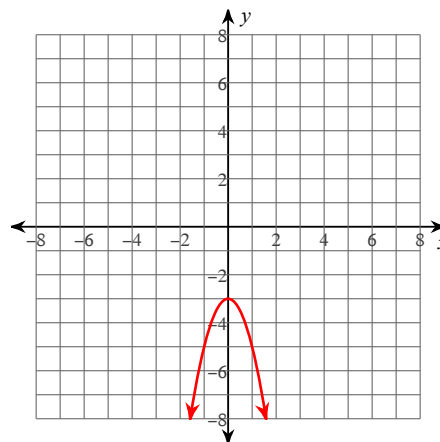
Vertex: (-1, -4)
Axis of Sym.: $x = -1$

$$29) y = \frac{1}{3}(x + 3)^2 + 3$$



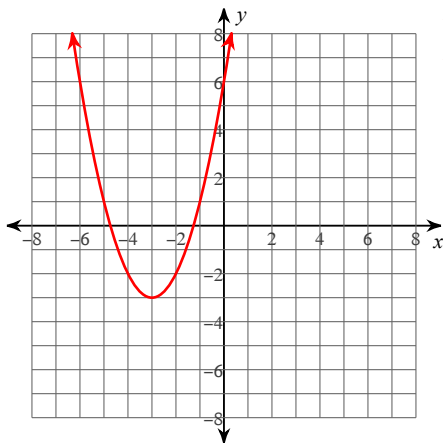
Vertex: (-3, 3)
Axis of Sym.: $x = -3$

$$30) y = -2x^2 - 3$$



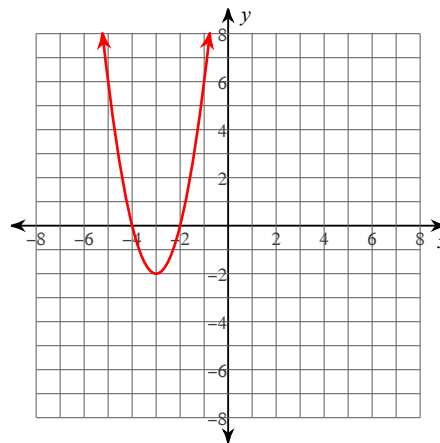
Vertex: (0, -3)
Axis of Sym.: $x = 0$

$$31) y = (x + 3)^2 - 3$$



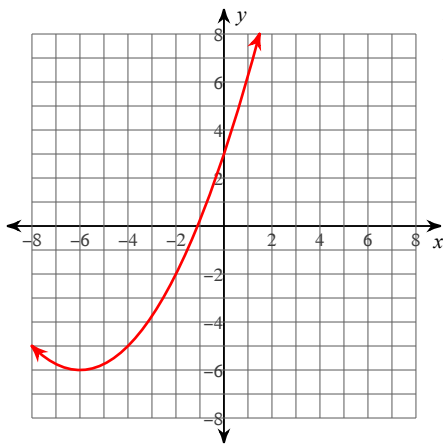
Vertex: $(-3, -3)$
Axis of Sym.: $x = -3$

$$32) y = 2(x + 3)^2 - 2$$



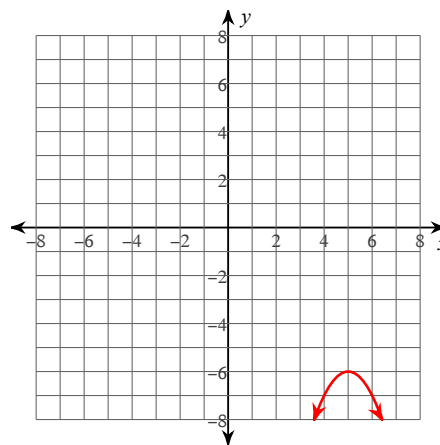
Vertex: $(-3, -2)$
Axis of Sym.: $x = -3$

$$33) y = \frac{1}{4}(x + 6)^2 - 6$$



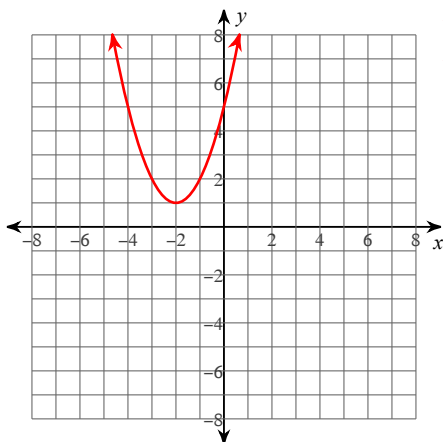
Vertex: $(-6, -6)$
Axis of Sym.: $x = -6$

$$34) y = -(x - 5)^2 - 6$$



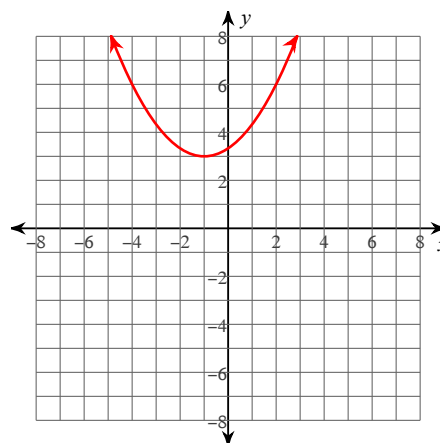
Vertex: $(5, -6)$
Axis of Sym.: $x = 5$

$$35) y = (x + 2)^2 + 1$$



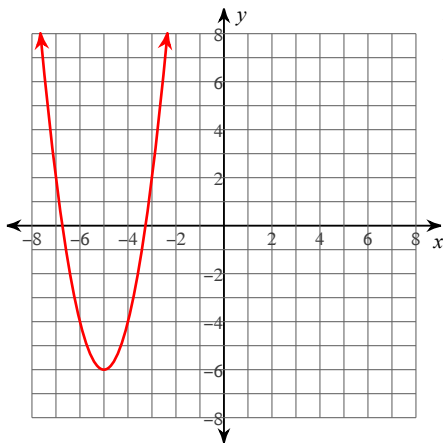
Vertex: $(-2, 1)$
Axis of Sym.: $x = -2$

$$36) y = \frac{1}{3}(x + 1)^2 + 3$$



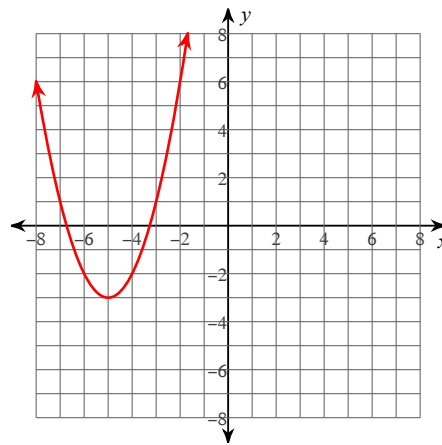
Vertex: $(-1, 3)$
Axis of Sym.: $x = -1$

$$37) y = 2(x + 5)^2 - 6$$



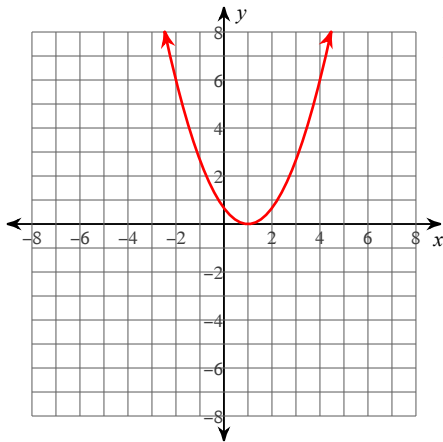
Vertex: $(-5, -6)$
Axis of Sym.: $x = -5$

$$38) y = (x + 5)^2 - 3$$



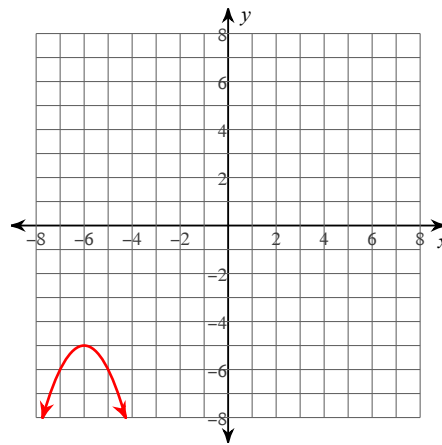
Vertex: $(-5, -3)$
Axis of Sym.: $x = -5$

$$39) y = \frac{2}{3}(x - 1)^2$$



Vertex: $(1, 0)$
Axis of Sym.: $x = 1$

$$40) y = -(x + 6)^2 - 5$$



Vertex: $(-6, -5)$
Axis of Sym.: $x = -6$

Solve each equation by completing the square.

$$41) x^2 + 16x - 80 = 0$$

$\{4, -20\}$

$$42) n^2 - 12n - 45 = 0$$

$\{15, -3\}$

$$43) m^2 - 4m - 5 = 0$$

$\{5, -1\}$

$$44) n^2 - 8n - 65 = 0$$

$\{13, -5\}$

$$45) x^2 - 20x - 21 = 0$$

$\{21, -1\}$

$$46) r^2 - 2r - 24 = 0$$

$\{6, -4\}$

$$47) m^2 + 20m + 75 = 0$$

$\{-5, -15\}$

$$48) m^2 - 14m - 95 = 0$$

$\{19, -5\}$

$$49) x^2 - 2x - 48 = 0$$

$\{8, -6\}$

$$50) x^2 + 8x - 65 = 0$$

$\{5, -13\}$

$$51) b^2 + 4b - 12 = 0$$

$$\{2, -6\}$$

$$53) b^2 + 2b - 24 = 0$$

$$\{4, -6\}$$

$$55) n^2 - 14n + 48 = 0$$

$$\{8, 6\}$$

$$57) x^2 + 20x + 84 = 0$$

$$\{-6, -14\}$$

$$59) 5v^2 - 20v - 25 = 0$$

$$\{5, -1\}$$

$$61) 3a^2 - 18a - 81 = 0$$

$$\{9, -3\}$$

$$63) 4x^2 - 16x - 65 = 0$$

$$\left\{\frac{13}{2}, -\frac{5}{2}\right\}$$

$$65) 8b^2 - 16b - 90 = 0$$

$$\left\{\frac{9}{2}, -\frac{5}{2}\right\}$$

$$67) 10x^2 + 20x - 30 = 0$$

$$\{1, -3\}$$

$$69) 5v^2 - 20v + 15 = 0$$

$$\{3, 1\}$$

$$52) x^2 + 12x - 28 = 0$$

$$\{2, -14\}$$

$$54) n^2 + 14n + 33 = 0$$

$$\{-3, -11\}$$

$$56) x^2 + 18x + 65 = 0$$

$$\{-5, -13\}$$

$$58) 8x^2 + 16x - 90 = 0$$

$$\left\{\frac{5}{2}, -\frac{9}{2}\right\}$$

$$60) 7k^2 - 14k - 21 = 0$$

$$\{3, -1\}$$

$$62) 8n^2 + 16n + 6 = 0$$

$$\left\{-\frac{1}{2}, -\frac{3}{2}\right\}$$

$$64) 7p^2 + 14p - 21 = 0$$

$$\{1, -3\}$$

$$66) 6x^2 + 12x - 18 = 0$$

$$\{1, -3\}$$

$$68) 4a^2 - 16a + 12 = 0$$

$$\{3, 1\}$$

$$70) 6n^2 - 12n - 18 = 0$$

$$\{3, -1\}$$