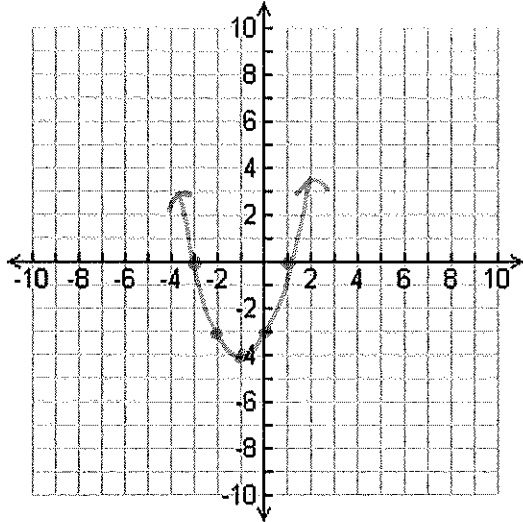


Name: key

Date: \_\_\_\_\_ Block: \_\_\_\_\_

Graph each function. Give an answer for each blank.

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



x	y
-3	0
-2	-3
-1	-4
0	-3
1	0

AOS:  $x = -1$

Vertex:  $(-1, -4)$

Y-Intercept:  $(0, -3)$

x-intercept (s):  $(-3, 0)$

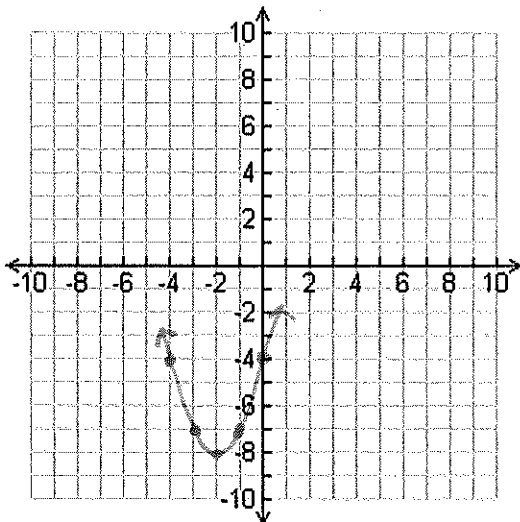
$(1, 0)$

Max/Min:  $-4$

Domain:  $(-\infty, \infty)$

Range:  $[-4, \infty)$

2.  $f(x) = x^2 + 4x - 4$



x	y
-4	-4
-3	-7
-2	-8
-1	-7
0	-4

AOS:  $x = -2$

Vertex:  $(-2, -8)$

Y-Intercept:  $(0, -4)$

x-intercept (s):  $-2 \pm 2\sqrt{2}$

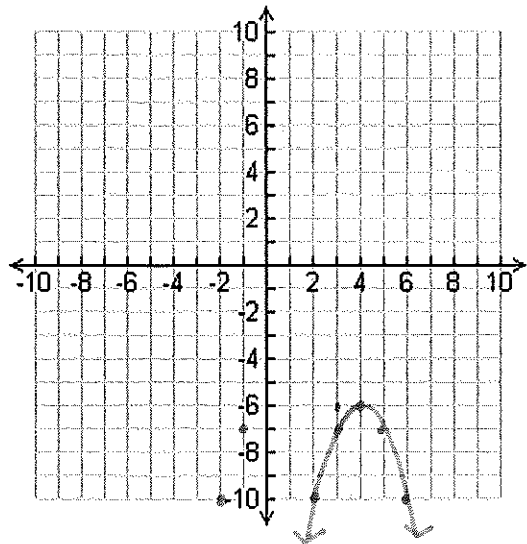
\_\_\_\_\_

Max/Min:  $-8$

Domain:  $(-\infty, \infty)$

Range:  $[-8, \infty)$

3.  $f(x) = -(x - 4)^2 - 6$



x	y
2	-10
3	-7
4	-6
5	-7
6	-10

AOS:  $x = 4$

Vertex:  $(4, -6)$

Y-Intercept:  $(0, -22)$

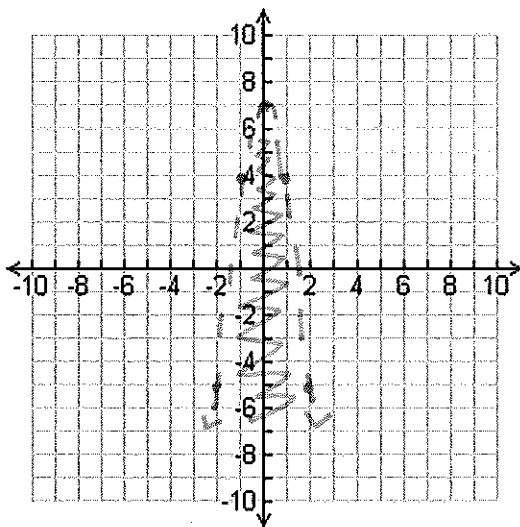
x-intercept (s):  $4 \pm i\sqrt{6}$

Max/Min:  $-6$

Domain:  $(-\infty, \infty)$

Range:  $(-\infty, -6]$

4.  $y < -3x^2 + 7$



x	y
-2	-5
-1	4
0	7
1	4
2	-5

AOS:  $x = 0$

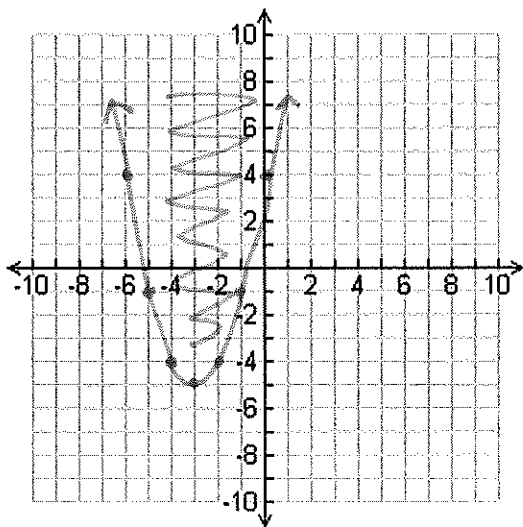
Vertex:  $(0, 7)$

Y-Intercept:  $(0, 7)$

dashed or solid

Don't forget to shade!

5.  $y \geq (x + 3)^2 - 5$



X	Y
-5	-1
-4	-4
-3	-5
-2	-4
-1	-1

AOS:  $x = -3$

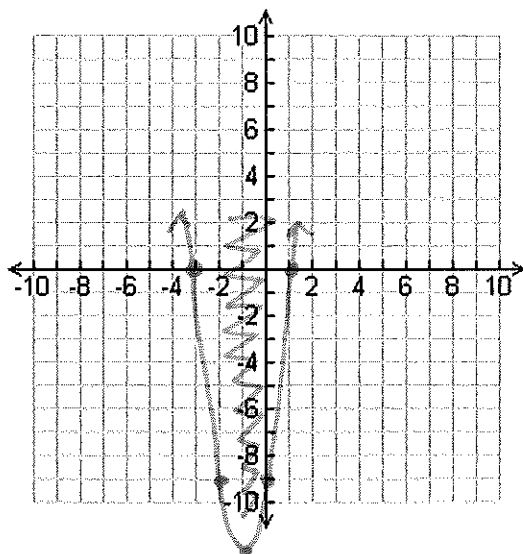
Vertex:  $(-3, -5)$

Y-Intercept:  $(0, 4)$

dashed or solid

Don't forget to shade!

6.  $y \geq 3(x - 1)(x + 3)$



X	Y
-3	0
-2	-9
-1	-12
0	-9
1	0

AOS:  $x = -1$

Vertex:  $(-1, -12)$

Y-Intercept:  $(0, -9)$

dashed or solid

Don't forget to shade!

Determine the end behavior for the following functions.

7.  $h(x) = 3x^4 - x^3 + 6x^2 - 2x + 9$

as  $x \rightarrow -\infty$ ,  $f(x) \rightarrow \underline{\infty}$

as  $x \rightarrow +\infty$ ,  $f(x) \rightarrow \underline{\infty}$

8.  $g(x) = -5x^3 + 2x - 11$

as  $x \rightarrow -\infty$ ,  $f(x) \rightarrow \underline{\infty}$

as  $x \rightarrow +\infty$ ,  $f(x) \rightarrow \underline{-\infty}$

9.  $h(x) = -x^6 + 2x^4 + 3x + 9$

as  $x \rightarrow -\infty$ ,  $f(x) \rightarrow \underline{-\infty}$

as  $x \rightarrow +\infty$ ,  $f(x) \rightarrow \underline{-\infty}$

10.  $g(x) = 6x^5 + 2x^4 + 5x^3 + 4$

as  $x \rightarrow -\infty$ ,  $f(x) \rightarrow \underline{-\infty}$

as  $x \rightarrow +\infty$ ,  $f(x) \rightarrow \underline{\infty}$

Graph the polynomial.

11.

$f(x) = 2x^4 - 18x^3 - 8x^2 + 72x$

y-intercept:  $\underline{(0,0)}$

x-intercept (s):  $\underline{(-2,0)}$

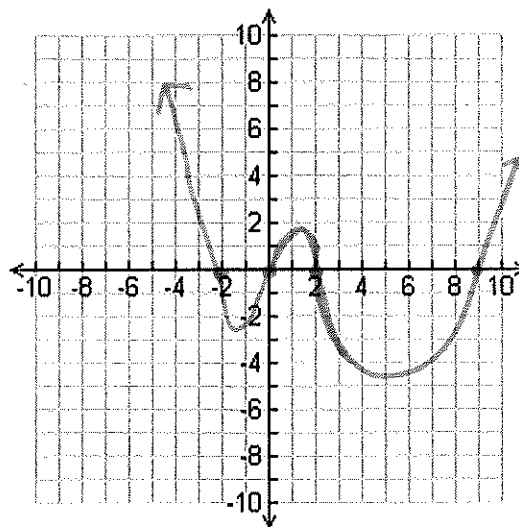
$\underline{(0,0)}$

$\underline{(2,0)}$

$\underline{(9,0)}$

as  $x \rightarrow -\infty$ ,  $f(x) \rightarrow \underline{\infty}$

as  $x \rightarrow +\infty$ ,  $f(x) \rightarrow \underline{\infty}$



Convert the function into the missing form.

	Standard	Vertex	Intercept
12.	$x^2 - 2x - 15$	$(x-1)^2 - 16$	$(x+3)(x-5)$
13.	$2x^2 + 4x - 6$	$2(x+1)^2 - 8$	$2(x+3)(x-1)$
14.	$2x^2 + 20x + 42$	$2(x+5)^2 - 8$	$2(x+7)(x+3)$

Fill in the table with the requested values.

	y intercept	vertex	AOS
12.	$(0, -15)$	$(1, -16)$	$x = 1$
13.	$(0, -6)$	$(-1, -8)$	$x = -1$
14.	$(0, 42)$	$(-5, -8)$	$x = -5$