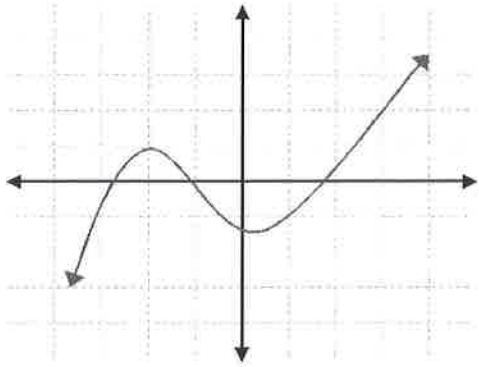


Objective: To match key features to graphs.

Warm Up: Complete the end behavior for each of the functions:

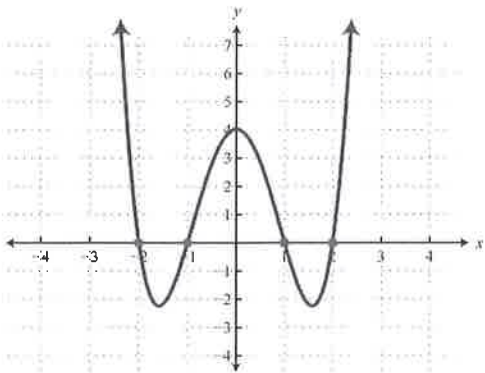
a.



As $x \rightarrow \infty, f(x) \rightarrow \infty$
(Where does the graph go to on the right side of the graph?)

As $x \rightarrow -\infty, f(x) \rightarrow -\infty$
(Where does the graph go to on the left side of the graph?)

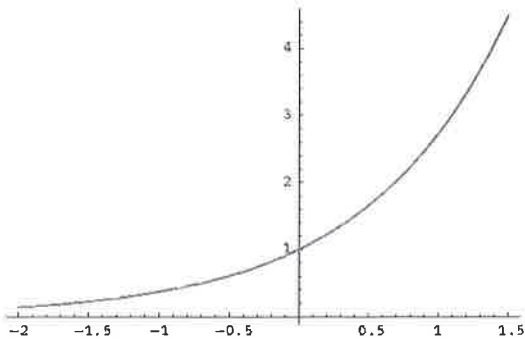
b.



As $x \rightarrow \infty, f(x) \rightarrow \infty$

As $x \rightarrow -\infty, f(x) \rightarrow \infty$

c.



As $x \rightarrow \infty, f(x) \rightarrow \infty$

As $x \rightarrow -\infty, f(x) \rightarrow 0$

Practice: Below is a list of key features. Determine which key features apply to the various equations. You may want to use your calculator to help you. Hint: the key features will be used more than once and the equations will have multiple answers.

A One maximum	B As $x \rightarrow \infty, f(x) \rightarrow -\infty$ As $x \rightarrow -\infty, f(x) \rightarrow -\infty$	C 3 x-intercepts	D Odd function
E One relative maximum	F 4 x-intercepts	G Even function	H As $x \rightarrow \infty, f(x) \rightarrow \infty$ As $x \rightarrow -\infty, f(x) \rightarrow \infty$
I As $x \rightarrow \infty, f(x) \rightarrow \infty$ As $x \rightarrow -\infty, f(x) \rightarrow -\infty$	J One relative minimum	K One minimum	L One x-intercept
M No x-intercepts	N No y-intercepts	O As $x \rightarrow \infty, f(x) \rightarrow -\infty$ As $x \rightarrow -\infty, f(x) \rightarrow \infty$	P 2 x-intercepts

D I L 1. $a(x) = 0.5x^3$

H J K L 2. $b(x) = |x - 1|$

L N 3. $c(x) = \log(7x) - 1$

H J K M 4. $d(x) = 3x^2 - 4x + 2$

L N 5. $e(x) = \ln x$

H J K P 6. $f(x) = 3^x - 2x - 6$

C E I J 7. $g(x) = x^3 + 2x^2 - 2x - 1$

G M N 8. $h(x) = \left| \frac{1}{x} \right|$

C E J O 9. $i(x) = -2x^5 + 2x^3 + 5x - 1$

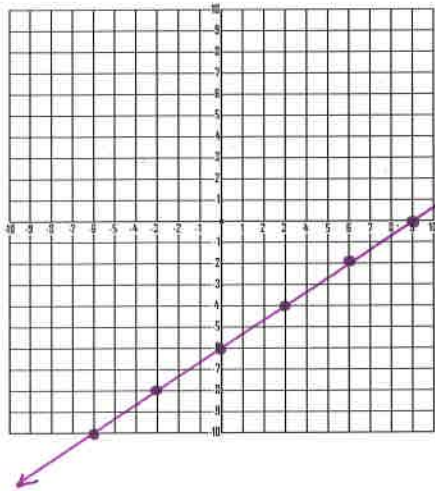
D E I J M N 10. $j(x) = \frac{3}{x} + x$

A B E G P 11. $k(x) = -3x^2 + 2$

Objective: To review how to graph linear, quadratic, and exponential functions by hand.

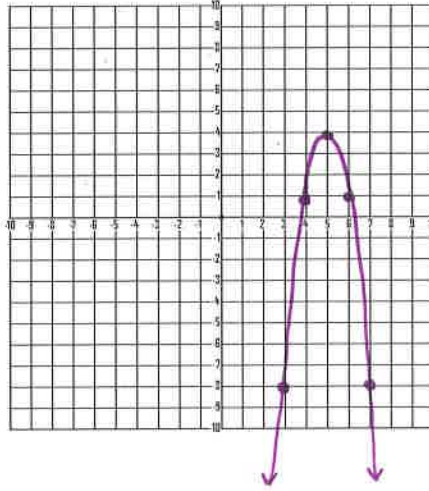
Example 1: Graph each of the following equations

a. $y = \frac{2}{3}x - 6$



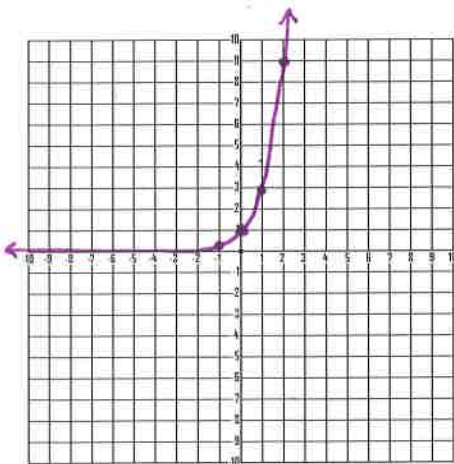
x	y
-6	-10
-3	-8
0	-6
3	-4
6	-2
9	0

b. $g(x) = -3(x - 5)^2 + 4$



x	y
3	-8
4	-1
5	4
6	-1
7	-8

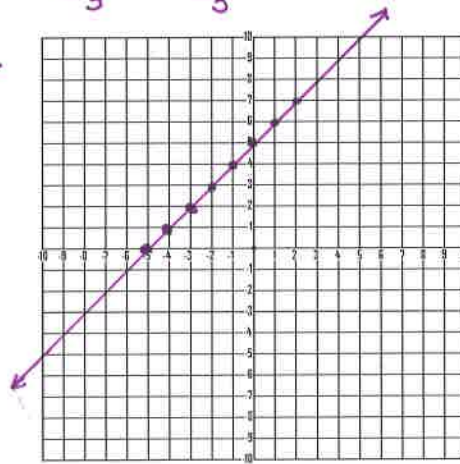
c. $f(x) = 3^x$



x	y
-1	1/3
0	1
1	3
2	9
3	27

d. $y + 3 = x + 8$

$y = x + 5$

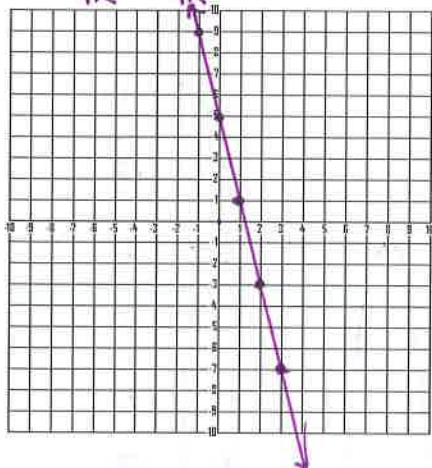


x	y
-5	0
-4	1
-3	2
-2	3
-1	4
0	5
1	6
2	7
3	8

Practice: Graph each of the following

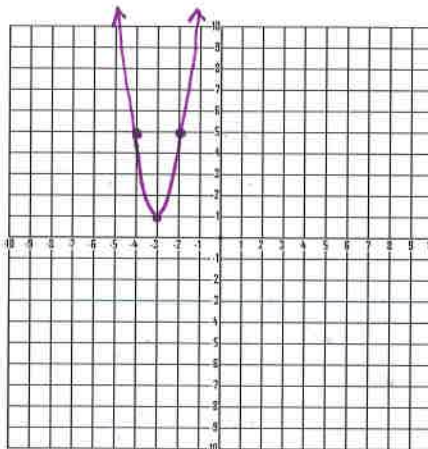
1. $y + 4x = 5$

$y = -4x + 5$



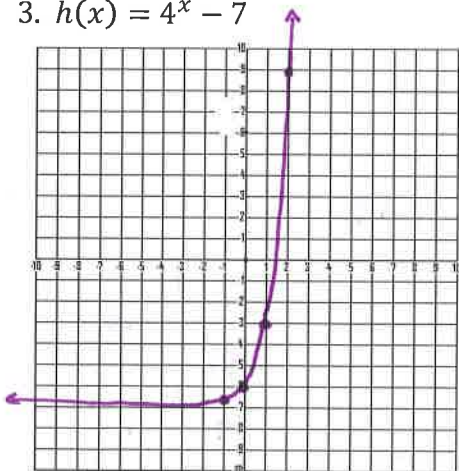
x	y
-1	9
0	5
1	1
2	-3
3	-7

2. $f(x) = 4(x + 3)^2 + 1$



x	y
-4	5
-3	1
-2	5
-1	17

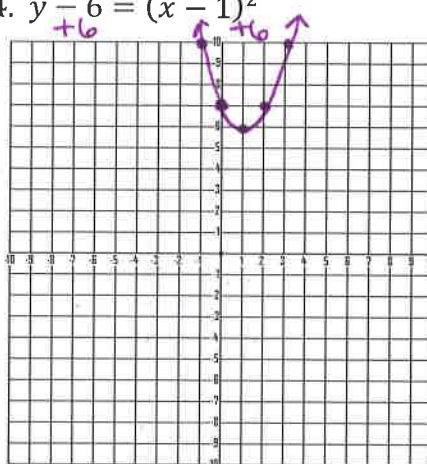
3. $h(x) = 4^x - 7$



x	y
-1	-6.75
0	-6
1	-3
2	9

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

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



x	y
-1	10
0	7
1	6
2	7
3	10