

### 1.3 Notes – Cubic Polynomials and Graphing Cubics

A. Simplify and write in standard form.

1.  $(5n^2 + 3) + (7n^3 - 4)$

2.  $(3x - 12x^3) - (6x^3 - 1 + 10x)$

3.  $(5w^3 + 9w^2) - (-2 + 4w^3) + (-8 - w^3)$

4.  $(a^3 + 8ab - 5b^2) + (-4a^3 - 4ab + b^2)$

B. Multiply each polynomial using the distributive property. Write answers in standard form.

1.  $-3h(-2h^2 - 9h + 4)$

2.  $(b - 5)(3b^2 + b - 6)$

3.  $(4x^2 - 2y)(x + 9y)$

4.  $(4z - 3)^3$

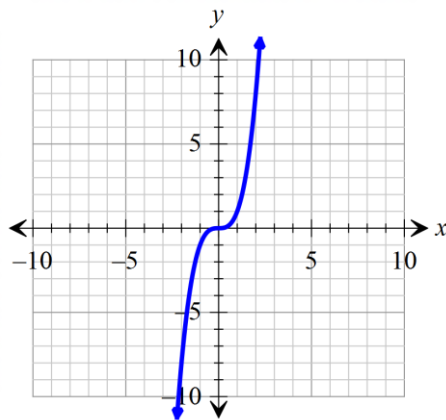
C. Volume

1. Find the volume of the rectangular prism with a length of  $(x-3)$ ft., a width of  $(x)$ ft., and a height of  $(x+2)$ ft. Leave your answer in terms of  $x$ .

D. Graph each cubic equation by making a table.

1.  $f(x) = x^3 - 4$

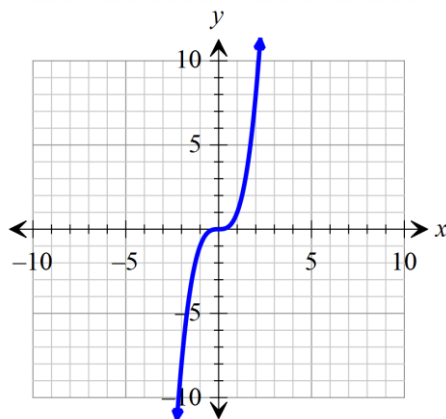
$x$	$f(x) = x^3 - 4$	$f(x)$
-2		
-1		
0		
1		
2		



What does the -4 do to the graph when compared to the parent graph?  $y = x^3$

2.  $f(x) = (x+5)^3$

$x$	$f(x) = (x+5)^3$	$f(x)$
-7		
-6		
-5		
-4		
-3		

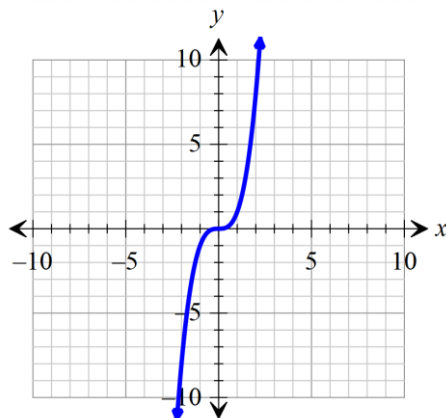


What does the +5 do to the graph when compared to the parent graph?  $y = x^3$

What would happen to the parent graph  $y = x^3$  if the 5 was negative?

4.  $f(x) = -\frac{1}{2}x^3$

$x$	$f(x) = -\frac{1}{2}x^3$	$f(x)$
-2		
-1		
0		
1		
2		



What does the negative do to the graph when compared to the parent graph?  $y = x^3$

What does the  $\frac{1}{2}$  do to the graph when compared to the parent graph?  $y = x^3$

What would happen to the parent graph  $y = x^3$  if the coefficient was a whole number instead of a fraction?

E. State whether the table is linear, quadratic, or cubic.

1.

$x$	$f(x)$
-2	-22
-1	-8
0	-6
1	-4
2	10

2.

$x$	$f(x)$
-2	5
-1	3
0	1
1	-1
2	-3

3.

$x$	$f(x)$
-2	-3
-1	0
0	1
1	0
2	-3

4.

$x$	$f(x)$
-6	-8
-5	-1
-4	0
-3	1
-2	8