Name _____ Date _____ Period _____

Simplify. Write your answer in standard form.

1. $\left(3n^3+2\right)+\left(6n^2-8\right)$

2. $\left(2w-13w^3\right)-\left(4+9w^3\right)$

3. $\left(4u^3+5u\right)-\left(4u+7u^2-6u^3\right)$

4. $\left(8x^3+7x^2\right)-\left(-4+5x^3\right)+\left(-3-x^3\right)$

5. $\left(2p^2-6p\right)-\left(3p^3+7\right)-\left(4p^2+5-2p^3\right)$

6. $\left(m^3-5mp-4p^2\right)+\left(-3m^3+5mp+p^2\right)$

Multiply each of the following polynomials using the distributive property. Simplify completely, combining like terms. Write your answer in standard form!

7. $-4y\left(-y^2-8y+2\right)$

8. $\left(z+5\right)\left(z^2-3\right)$

9. $\left(2r-3\right)^3$

10. $\left(2x^2+9y\right)\left(x+5y\right)$

11. $\left(4y^2 + y - 2\right)\left(-5y - 7\right)$

12. $\left(x - 3\right)\left(x^2 + 3x + 9\right)$

13. $\left(x + 5y\right)^3$

14. $\left(2x + 1\right)\left(4x^2 - 2x + 1\right)$
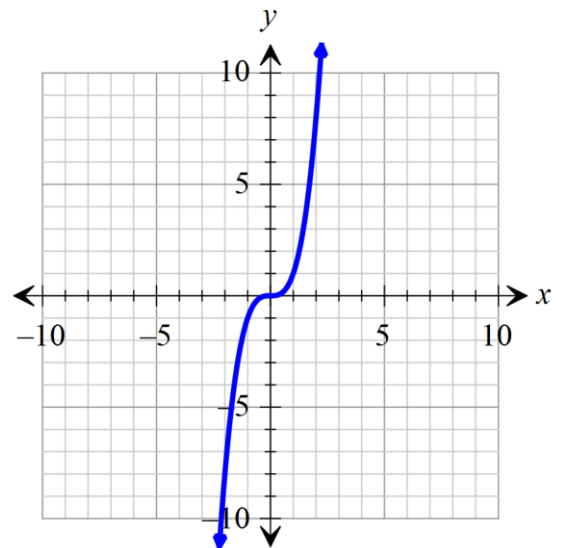
Make a table for each of the following equations. Graph the equations.   Show work. Answer the questions.
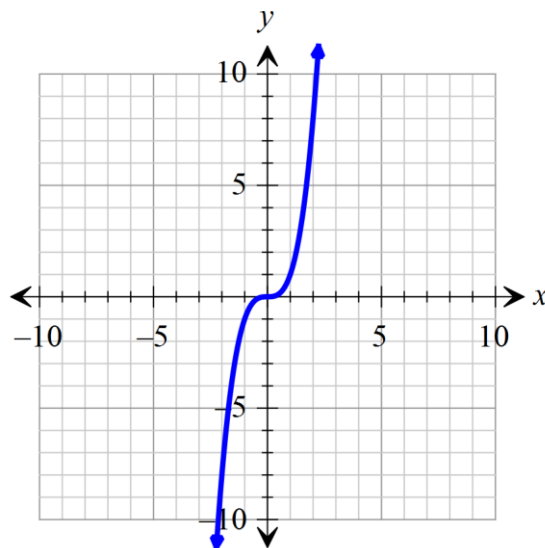
15. $f(x) = x^3 - 2$

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

15a. What does the -2 do to the graph when compared to the parent graph?

16. $y = (x + 3)^3$

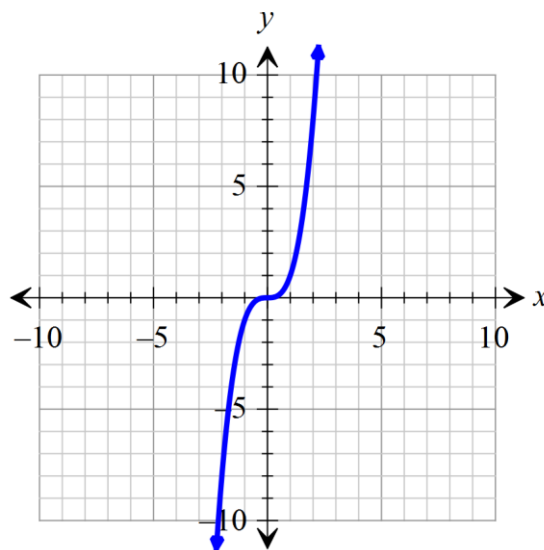| x	$y = (x + 3)^3$	y	(x, y)
-2			
-1			
0			
1			
2			

16a. What does the +3 do to the graph when compared to the parent graph?

16b. What does the negative in front of the equation do to the graph when compared to the parent graph?

17. $y = (x - 4)^3$

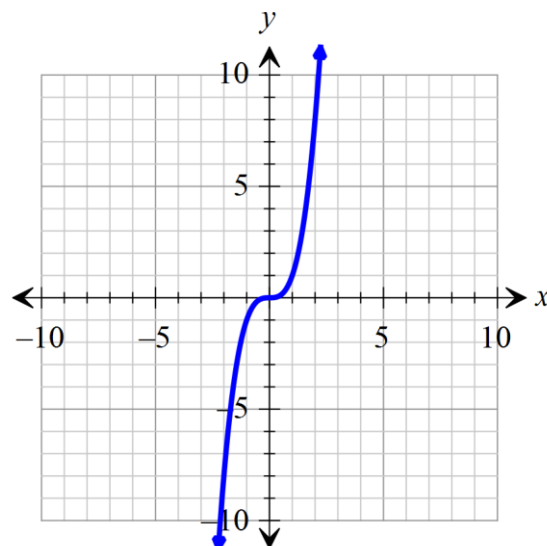| x	$y = (x - 4)^3$	y	(x, y)
-6			
-5			
-4			
-3			
-2			

17a. What does the +4 do to the graph when compared to the parent graph?

17b. What is the difference in the **equations** between #15 and #17?
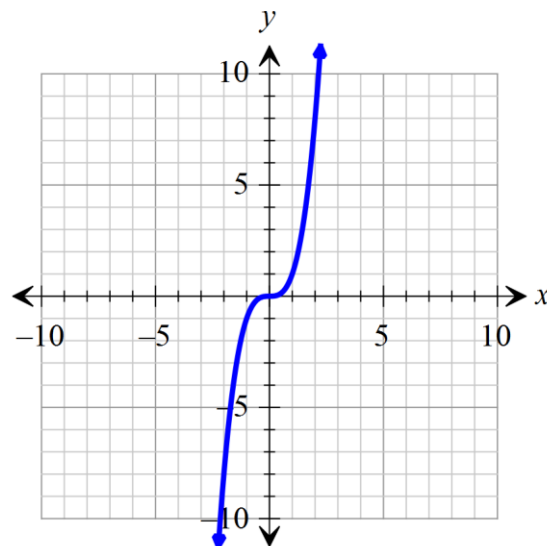
18. $f(x) = -x^3$

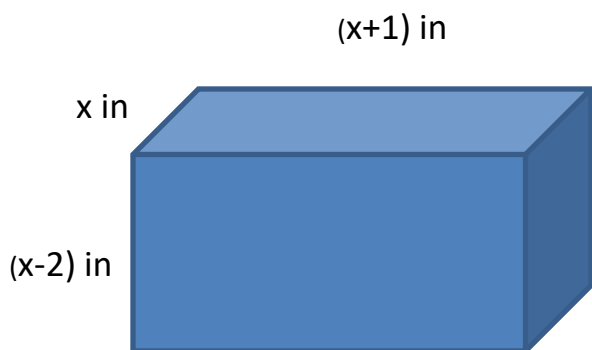| x	$f(x) = -x^3$	$f(x)$	$(x, f(x))$
-1			
0			
1			
2			
3			

19. $y = \frac{1}{2}x^3$

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

19a. What does the $\frac{1}{2}$ do to the graph when compared to the parent graph?

20. Find the volume of the rectangular prism. Leave your answer in terms of x.

(x+1) in

x in

(x-2) in

21. Twice a number cubed plus 16. Define the variable. Then write the cubic expression.

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

22.

x	$f(x)$
-2	-5
-1	-7
0	-9
1	-11

23.

x	$f(x)$
-3	11
-2	6
-1	3
0	2

24.

x	$f(x)$
4	2
5	1
6	2
7	5

25.

x	$f(x)$
-5	-8
-4	2
-3	3
-2	4