Name _____ Date _____ Period _____

List all the parts of the polynomial.

1. $-4x + 3x^2 + 7$ What type of equation is this?

Standard form:

Leading coefficient:

All coefficients:

Constant:

Degree of the polynomial:

Simplify each of the following polynomials by adding like terms. Write you answer in standard form.

2. $\left(5n^2 + 1\right) + \left(2n^2 - 10\right)$

3. $\left(7w - 12w^2\right) - \left(2 + 9w^2\right)$

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

5. $\left(4x + 7x^2\right) - \left(-3 + 6x^2\right) + \left(-3x^2 - 11x\right)$

6. $\left(p^2 - 8p\right) - \left(4p + 7\right) - \left(9p^2 + 2\right)$

7. $\left(4m^2 - mp - 8p^2\right) + \left(-2m^2 + 9mp + 3p^2\right)$

8. In a complete sentence, explain what makes terms like terms.

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

9. $3v(v+2)$

10. $-4y(-y-2)$

11. $(z+5)(z-3)$

12. $(2x+9y)(x+5y)$

13. $(k-8)(k+8)$

14. $(2r-3)^2$

15. $(x+5y)^2$

16. $(3x-11y)(6x-y)$

17. $5(x-3)+(2x-1)$

18. $3(2x+5)-2(3x-4)$

19. Find the area of the rectangle. Leave your answer in terms of x and in standard form.

$(-4x+1)$ in

$(5x-7)$ in

20. Find the area of a rectangle with sides' $(x + 4)$ ft. and $(2x - 10)$ft. Leave your answer in terms of x and in standard form.

21. In a complete sentence, explain what makes an equation linear.

22. In a complete sentence, explain what makes an equation quadratic.

23. Three times a number squared increased by 7. Define the variable. Then write the quadratic expression.

24. Which answer(s) is a solution for the equation $-2x + y = 4$? Show your work! Do not just circle the answer.

a) $(-2, 1)$ b) $(0, 4)$ c) $(-3, -2)$ d) $(-1, 5)$

25. Which answer(s) is a solution for the equation $y = x^2$? Show your work! Do not just circle the answer.

a) $(3, 9)$ b) $(-2, -4)$ c) $(-3, 9)$ d) $(-1, 1)$

Solve for y and leave answer in standard form. Leave answers as simplified fractions. Show ALL work.

26. $-3x^2 - 7y = -14$

27. $y + 3 = -\dfrac{2}{3}(x - 3)^2$

Solve for y given the value of x. Leave answer as a fraction. Show ALL your work.

28. $y = 2x^2 + 5$, for $x = -3$

29. $-x^2 - 7y = 21$,   for $x = 4$

Evaluate the following functions. Leave answer as a fraction. Show ALL your work.
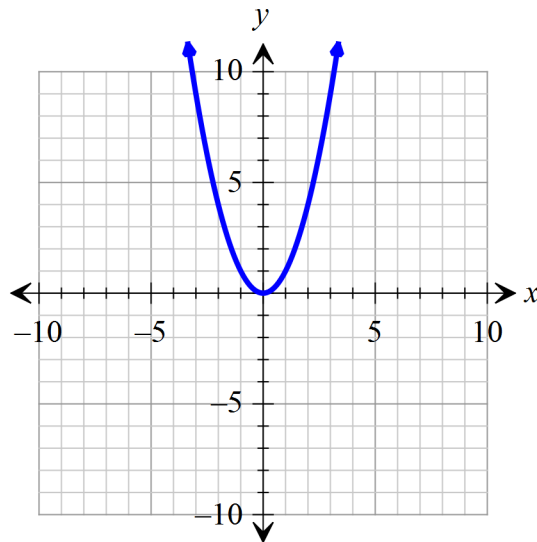
30. $f(x) = \dfrac{1}{2}x^2 - 3$, $f(4)$

31. $f(x) = 8x^2 - 1$, $f\left(\dfrac{1}{2}\right)$

Make a table for each of the following equations. Graph the equations. Show work. Answer the questions.
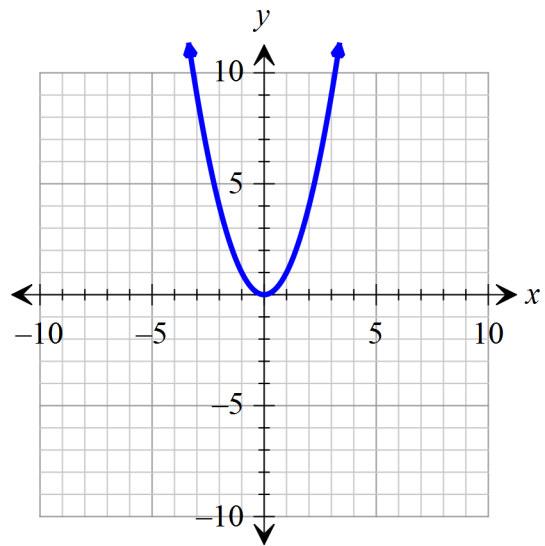
32. $y = x^2 - 4$

x	$y = x^2 - 4$	y	(x, y)
-2			
-1			
0			
1			
2			

32a. How does the -4 affect the graph when compared to the parent graph?

33. $y = -x^2$

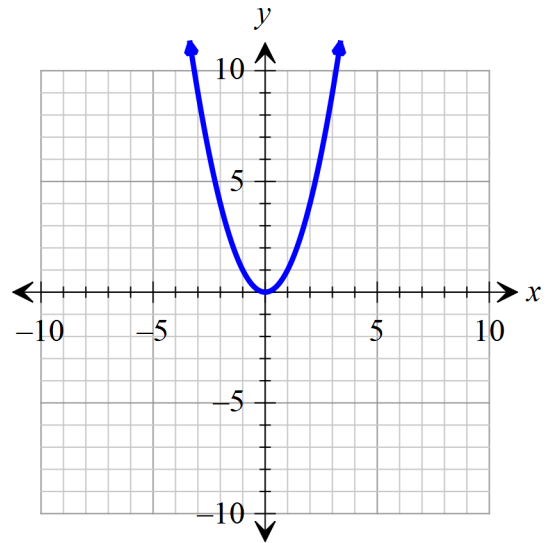| x	$y = -x^2 + 1$	y	(x, y)
-2			
-1			
0			
1			
2			

33a How does the negative in front of the equation affect the graph when compared to the parent graph?

34. $y = (x + 4)^2$

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

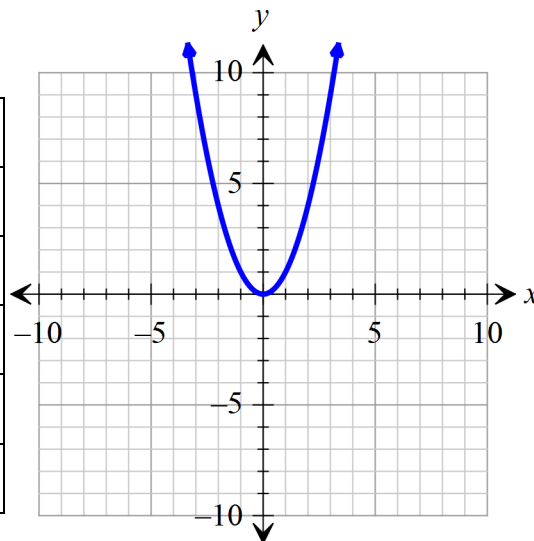34a. How does the +4 affect the graph when compared to the parent graph?

34b. What is the difference in the **equations** between #32 and #34?

#32 $f(x) = x^2 - 4$ #34 $y = (x + 4)^2$

35. $f(x) = 2x^2$

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

35a. How does the 2 affect the graph when compared to the parent graph?

36. $y = -3(x - 1)^2$

Make a rough sketch of what you think the

graph will look like using the information from

#32-35. Think about how each number affects the

graph.