Algebra 1/2 Name_____

PRACTICE FINAL

True or False

1) True or False: If your are solving a systems of equations and are left with 0=0 then there are infinite solutions.

2) Parabolas can have no y-intercept.

3) The formula -b/2a will find the x intercepts of a parabola.

4) Artimetic sequences can be written only recursively.

5) $y = 7 \cdot 2.12^{x}$ represents 212% gain.

6) y = 3(x-8)(x-4) has an axis of symmetry at x = 6

7) y = 3(x-8)(x-4) opens up.

8) y = 3(x-8)(x-4) has a y-intercept at (0,96)

Solve each system by elimination.

9) $5x + 6y = 13$
$2x + 3y = 7$

10) $7x + 3y = 5$
$-7x - 3y = -5$

Solve each system by substitution.

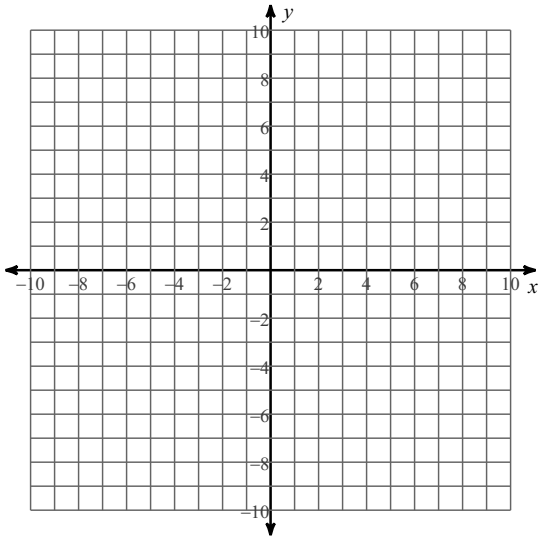
11) $y = x + 3$
$-5x + 6y = 15$

12) $15x + 3y = 3$
$y = -5x - 4$

Solve each system by graphing.

13) $y = -\frac{1}{5}x + 5$

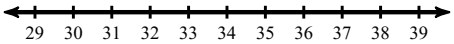
$y = \frac{7}{5}x - 3$



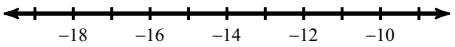
14) Chelsea and DeShawn are selling flower bulbs for a school fundraiser. Customers can buy bags of windflower bulbs and bags of daffodil bulbs. Chelsea sold 13 bags of windflower bulbs and 12 bags of daffodil bulbs for a total of $422. DeShawn sold 11 bags of windflower bulbs and 6 bags of daffodil bulbs for a total of $274. Find the cost each of one bag of windflower bulbs and one bag of daffodil bulbs.

Solve each inequality and graph its solution.

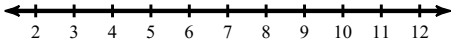
15) $11 \leq \frac{v}{3}$



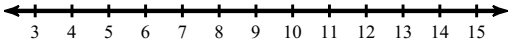
16) $256 \leq -16x$



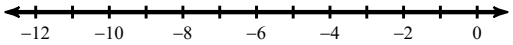
17) $208 > 2b + 7(5b - 2)$



18) $-80 < -9n + 1 \leq -35$

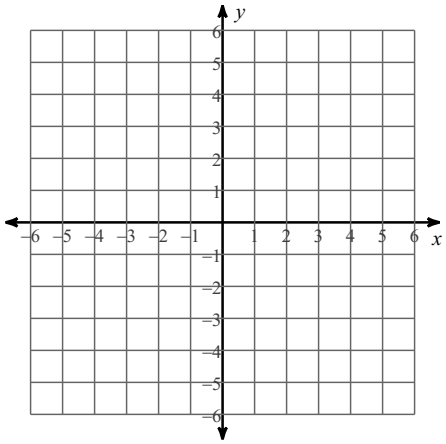


19) $7 - 5p \leq 47$ or $-10p - 5 \geq 85$



Sketch the graph of each linear inequality.

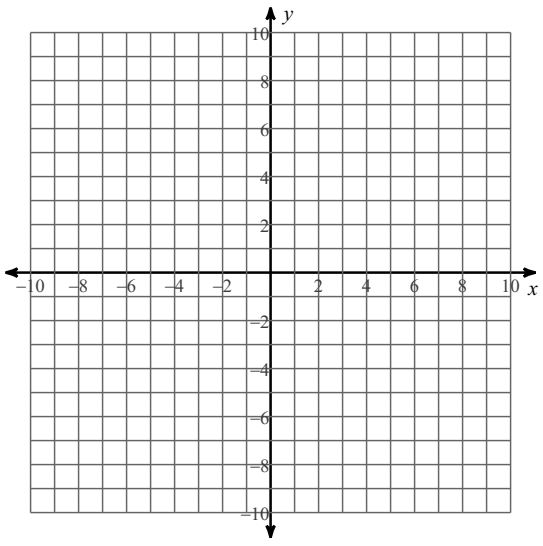
20) $y \leq x + 2$



Sketch the solution to each system of inequalities.

21) $y \geq \frac{9}{5}x - 6$

$y < -\frac{4}{5}x + 7$



Write the equation that models this situation:

22) You start learning how to solve Rubics cubes. The first time it takes you 32 minutes. Each time afterwards it takes you 11% less time.

23) Brown tree snakes were accidently introduced to Guam in 1940 by the US military. Since the orginal 4 snakes were introduced the populatuion increased 24.4% each year. How many will there be in 2010?

Write the equation that models this situation and use it to solve the scenario.

24) You start off sprinting as fast as you can, which is 10 miles an hour. Each minute you go 7% slower. How fast are you going after 20 mintues of running?

25) In 2007 you found a Snorlax Pokemon car worth $2.50. How much would it be worth in 2030 assuming it is worth 15% more each year?

Simplify. Your answer should contain only positive exponents.

26) $3yx^2 \cdot 2x^3y^0$

27) $(4prq^4)^4$

28) $\dfrac{3x}{2x^{-4}y^4 \cdot 3x^{-4}y^4}$

Factor each completely.

29) $x^2 + 2x - 8$

30) $r^2 - 7r - 30$

31) $2p^2 + 11p - 40$

Find each product.

32) $(3k - 1)(3k + 3)$

Solve each equation with the Quadratic Formula.

33) $2k^2 = -6k + 140$

34) $n^2 - 32 = -4n$

Solve each equation by factoring.

35) $b^2 - 14b + 48 = 0$

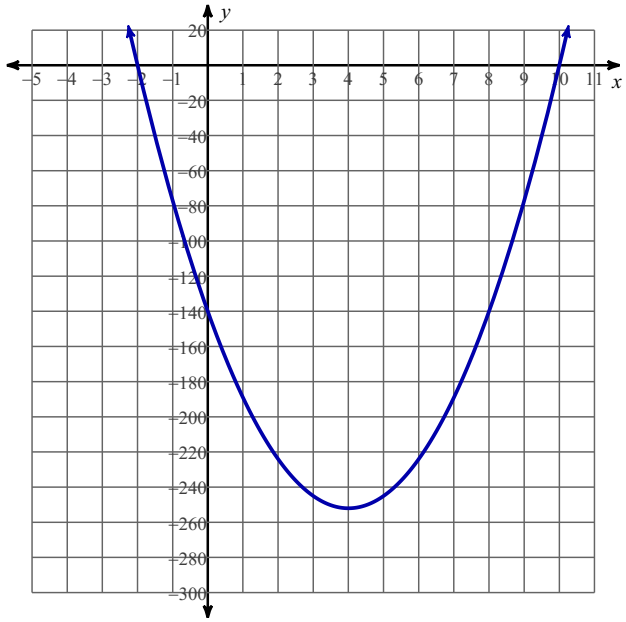
Use what you know about standard, vertex, and factored form to answer the following questions:

36) y = 10(x-2)(x+19) has x intercepts at:

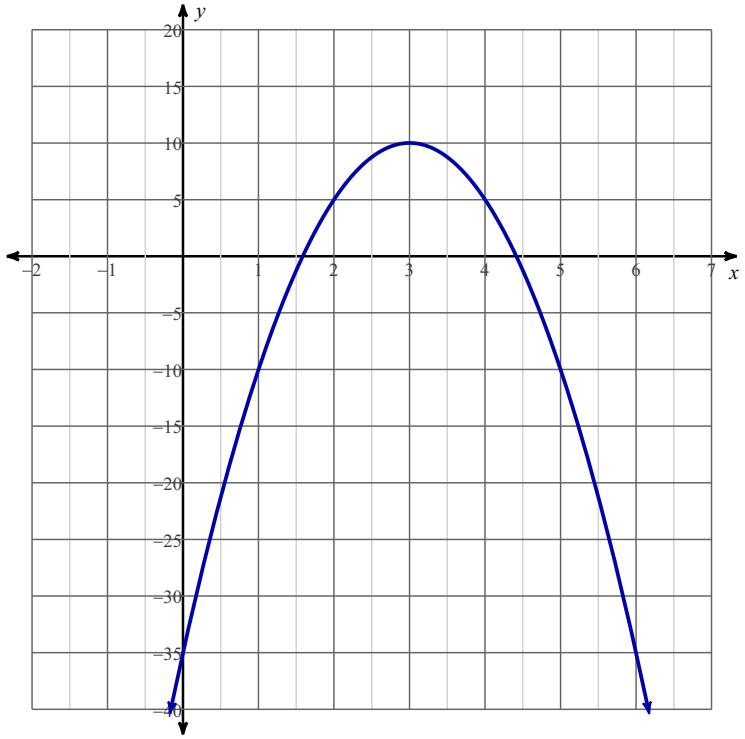
37) $y = -30(x - 2.5)^2 - 19$ has a vertex at:

38) Convert y = -2(x+1)(3x+5) to standard form.

39) What is the equation that made this graph? Use factored form.



40) What is the equation that made this graph?
Use vertex form.



Use what you know about sequences to answer the following questions.

41) Given the sequence $An = 3n - 6$, what is A7

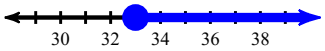
42) Given the sequence $A_1 = 3$
$An = -2(An - 1)$, what is A_5

43) Is the following sequence arithmetic or geometric: 6, 106, 206, 306, 406, ...

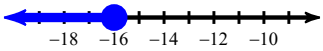
44) What is the recurisive formula that models this sequence: 1, 2, 6, 16, 44, ...

Answers to PRACTICE FINAL

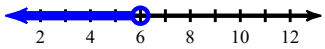
1) True
2) False
3) False
4) False
5) False
6) True
7) True
8) True
9) $(-1, 3)$
10) Infinite number of solutions
11) $(-3, 0)$
12) No solution
13) $(5, 4)$
14) bag of windflower bulbs: \$14, bag of daffodil bulbs: \$20
15) $v \geq 33$:



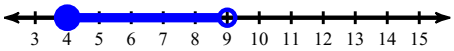
16) $x \leq -16$:



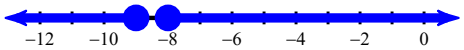
17) $b < 6$:



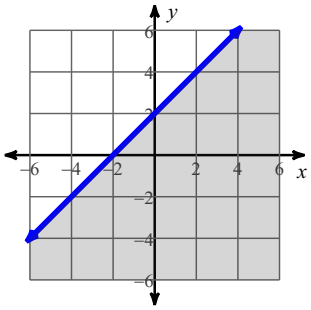
18) $4 \leq n < 9$:



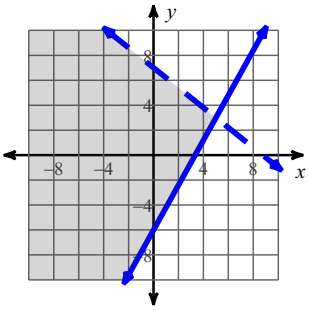
19) $p \geq -8$ or $p \leq -9$:



20)



21)



22) $y = 32 \cdot 0.89^{x}$
23) $y = 4 \cdot 1.244^{x}$ 17,357,477 snakes
24) 2.34 miles per hour
25) \$62.23
26) $6yx^5$
27) $256p^4r^4q^{16}$
28) $\frac{x^9}{2y^8}$
29) $(x+4)(x-2)$
30) $(r-10)(r+3)$
31) $(2p-5)(p+8)$
32) $9k^2 + 6k - 3$
33) $\{7, -10\}$
34) $\{4, -8\}$
35) $\{8, 6\}$
36) (2,0) and (-19,0)
37) (2.5,-19)
38) $y = -6x^2 - 16x - 10$
39) y = 7(x-10)(x+2)
40) $y = -5(x-3)^2 + 10$
41) 15
42) 48
43) Arithmetic
44) $A_0 = 1, \quad A_1 = 2, \quad An = 2(An-1 + An-2)$