Semester 1 Final Exam Review Algebra 3 - 4

LT AA0 - Solve each equation.

1) $-6(5 + 4x) = 126$

3) $-234 = -6(7 + 8x)$

5) $-168 = 7(6 - 6p)$
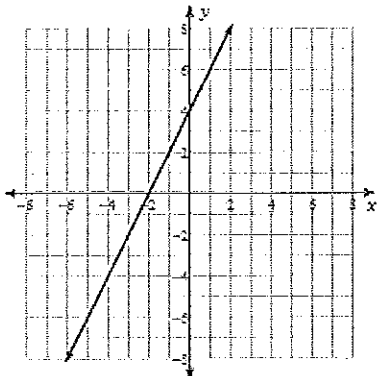
7) $-12x + 3y = -4$
$y = 4x + 5$

9) $y = -3x - 16$
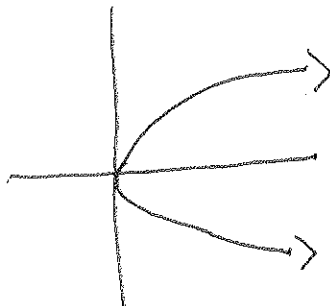$y = -4x - 19$

LT AA0 - Evaluate each function.

12) $k(x) = x^2 + 2$; Find $k(-4)$

13) $p(x) = -x^2 - 3$; Find $p(x)$ when p(x) = -147

5) Find the domain and range for the function below.

9 16) Find the Domain and Range when you graph the sleeping parabola $x = y^2$ on your calculator. The decide whether or not the relation is a function.

LT AA0 - Solve each equation with the quadratic formula. $X = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

18) $x^2 - 6x - 112 = 0$

19) $3x^2 + 10x - 13 = 0$

LT AA0 - Solve each equation by factoring.

12 20) $n^2 + 7n + 10 = 0$

13 21) $k^2 - 11k + 28 = 0$

LT AA1a - Solve for y in each equation

14 22) $-3(-7y - 7) = 105 + x$

15 23) $8(4 - 4y) + x = -96 + 2x$

LTAA1a - Simplify. Your answer should contain only positive exponents.

16) $\dfrac{m^2 n^5 \cdot \left(-m^4\right)^4}{-m^4}$

17) $\dfrac{-x^3 y^3}{-y^2 \cdot \left(-y^2\right)^3}$

LT AA1b - Solve each equation. Remember to check for extraneous solutions.

18) $\sqrt{2n+35} = 5$

19) $\sqrt{-6-n} = 1$

20) $\dfrac{4}{3} - \dfrac{n+4}{3n} = \dfrac{4n-3}{3n}$

21) Solve for x:

    a. $x^{\frac{1}{3}} = 3$

    b. $x^2 = 64$

LT AA1b - Solve each equation.

22) $-7|a-4| = -35$

23) $|6+r| + 3 = 7$

29) Expand and Simplify: $(2x + 4)^2$

28) Expand and simplify: $(x - 5)^2$

LT AA2a - Solve each equation by changing from standard form to graphing (vertex) form.

26) $x^2 + 6x - 27 = 0$

27) $x^2 + 10x - 81 = 0$

$V =$

$V =$

Now find the vertex of the equations above.

28) Find the locator point of the function $y = 5\sqrt{x-9} + 2$

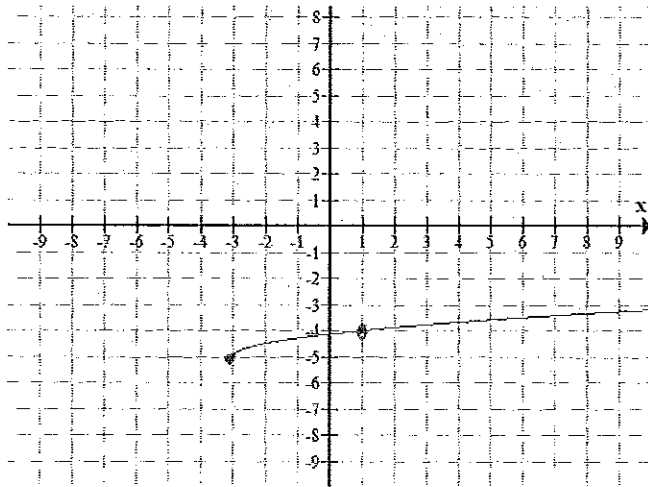29) Describe the graph of the function $-0.5(x + 5)^2 - 6$ as compared to $y = x^2$

30) Describe the graph of the function $f(x) =$
$f(x) = 4|x-3| + 2$

31) Find the stretch/compression factor of a cubic function that has a starting point of $(-2,-4)$ and another point of $(-4,-8)$.
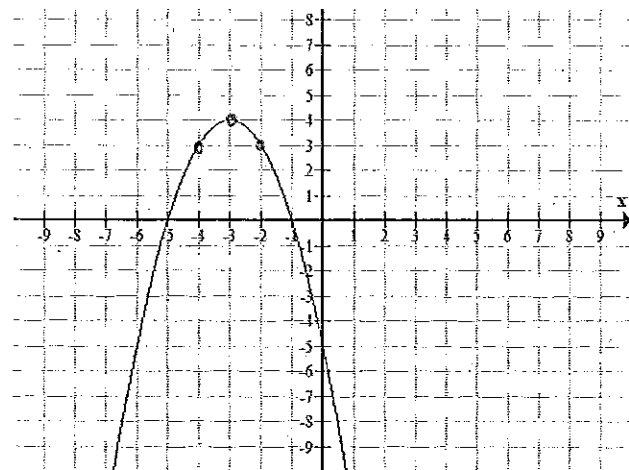
32.) Find the x and y-intercepts
$y = .25(x + 4)^2 - 8$

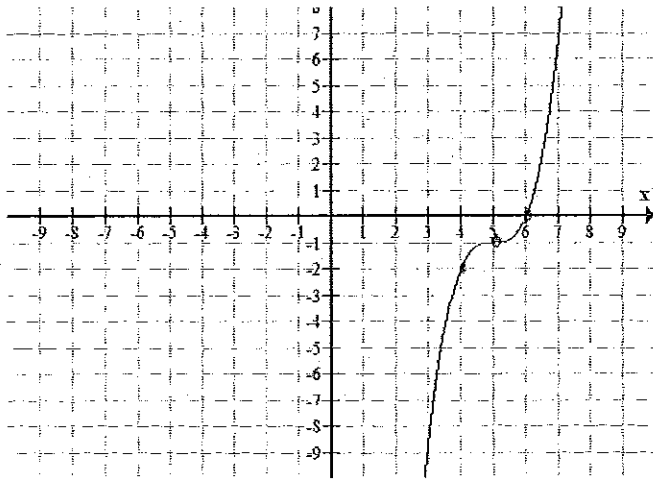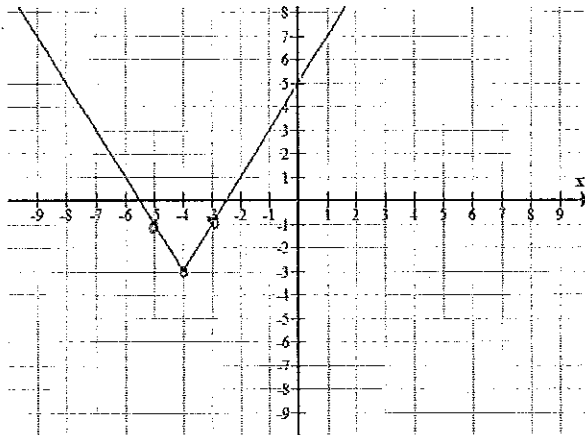33) 10) For each graph below find the equation of the graph

a.

b.
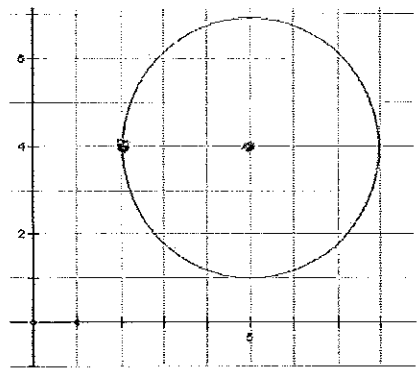
c.

d.

e.

Rewrite each equation in exponential form.

16) $\log_u 175 = v$

17) $\log_{17} x = y$

18) $\log_u v = 14$

19) $\log_{11} 1 = 0$

20) $\log_5 125 = 3$

Rewrite each equation in logarithmic form.

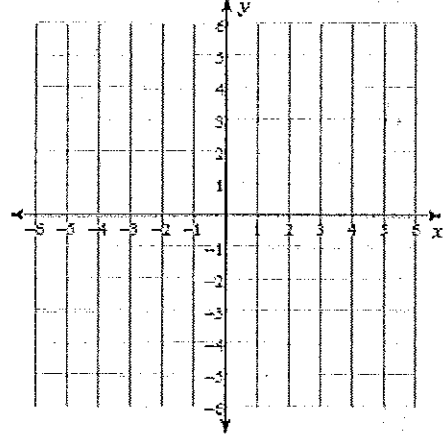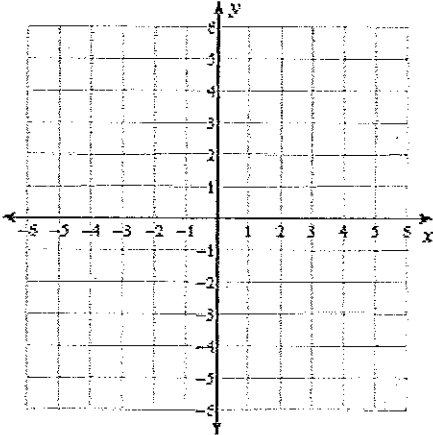21) $\left(\dfrac{1}{2}\right)^y = x$

22) $y^x = 65$

23) $2^6 = 64$

24) $16^2 = 256$

25) $18^2 = 324$

LT AA3 - Find the inverse of each function. Then graph the function and its inverse.

3⁴) $f(n) = \sqrt[3]{n} - 1$

35
12) $g(x) = -x - 4$

LT AA3 - Find the inverse of each function.

14) $f(x) = 2x^3 - 3$
36

13) $f(x) = \dfrac{-4x + 20}{9}$
37

38 16.) Find the inverse of the table below

X	Y	X	$f^{-1}(x)$
-2	6		
4	-3		
1	8		

1.) $x = -5$

2.) $x = 4$

3.) $p = 5$

4.) no solution

5.) $(-3, -7)$

6.) 18

7.) $12, -12$

8.) Domain: $-\infty < x < \infty$
   range: $-\infty < y < \infty$

9.)
   Domain: $x > 0$
   range: $-\infty < y < \infty$
   Not a function

10.) $x = 14, -8$

11.) $x = 1, -4.\overline{3}$

12.) $x = -2, -5$

13.) $x = 4, 7$

14.) $y = \dfrac{84}{21} + \dfrac{x}{21}$

15.) $y = 2 - \dfrac{x}{32}$

16.) $-m^{14} n^5$

17.) $-\dfrac{x^3}{y^5}$

18.) $n = -5$

19.) $n = -7$

20.) $n = -1$

21.) a. $x = 27$ b. $x = -8, 8$

22.) $a = 9, -1$

23.) $r = -2, -10$

24.) $4x^2 + 16x + 16$

25.) $x^2 - 10x + 25$

26.) $y = (x+3)^2 - 36$
   $V = (-3, -36)$

27.) $y = (x+5)^2 - 106$
   $V = (-5, -106)$

28.) $(h, k) = (9, 2)$

29.) flip, compression 0.5,
   Left 5, down 6

30.) stretch 4, right 3, up 2

31.) $a = .5$

32.) $y = (0, 8)$
   $x = (-9.166, 0) \ (1.166, 0)$

33.)
a. $y = .5\sqrt{x+3} - 5$
b. $y = -(x+3)^2 + 4$
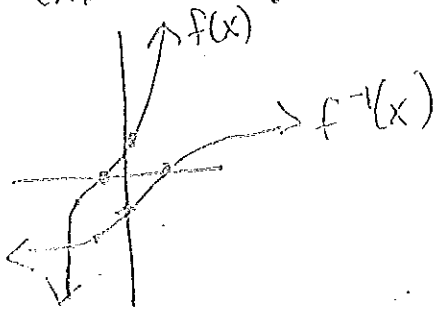c. $y = (x-5)^3 - 1$
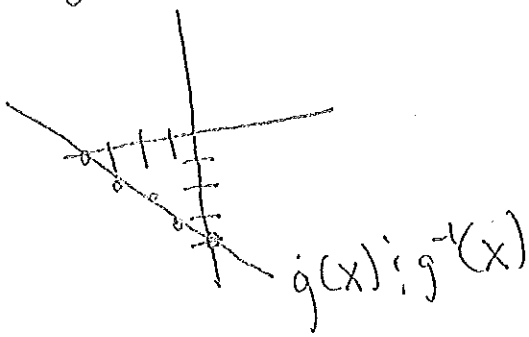d. $y = 2|x+4| - 3$
e. $(x-5)^2 + (y-4)^2 = 9$

34.)
$f^{-1}(x) = (n+1)^3$

35.)
$g^{-1}(x) = -x - 4$

36.) $f^{-1}(x) = \sqrt[3]{\dfrac{x+3}{2}}$

37.) $f^{-1}(x) = \dfrac{20 - 9x}{4}$

38.)

x	$f^{-1}(x)$
6	-2
-3	4
8	1

39.) $u^V = 175$

40.) $17^y = x$

41.) $u^{14} = V$

42.) $11^0 = 1$

43.) $5^3 = 125$

44.) $\log_{\frac{1}{2}} x = y$

45.) $\log_y 65 = x$

46.) $\log_2 64 = 6$

47.) $\log_{16} 256 = 2$

48.) $\log_{18} 324 = 2$