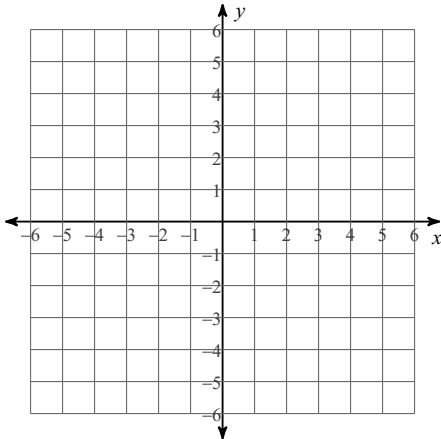


SM2 HW #6-6 (Unit 6 Test Preview HW)

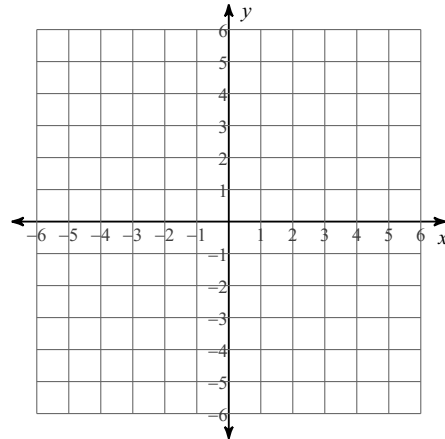
Date _____ Period _____

Sketch the graph of each linear inequality.

1) $y > \frac{7}{5}x - 5$

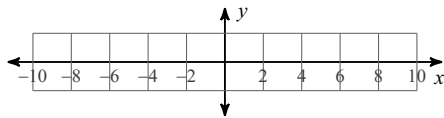


2) $y \geq -\frac{4}{5}x + 1$



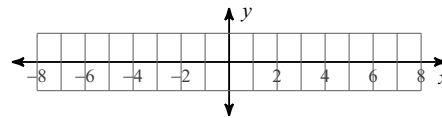
- 3) a) Graph the solution to the inequality.
b) Write the solution in interval notation.

$x^2 - 2x - 48 \leq 0$



- 4) a) Graph the solution to the inequality.
b) Write the solution in interval notation.

$2x^2 - x - 6 > 0$



- 5) Solve the equation:

$x^2 - 13x = -42$

- 6) Solve the equation:

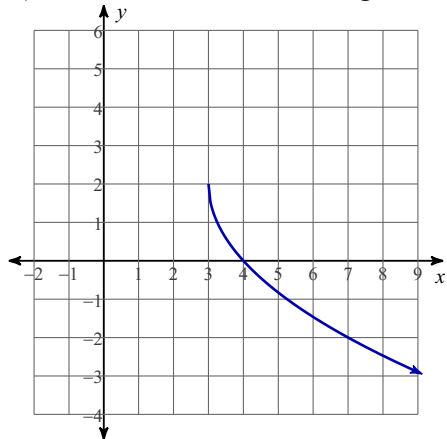
$x^2 = -3x$

- 7) Simplify
-
- $(3 + r)^2$

- 8) Simplify:
-
- $(5n^2 + 7n)^2$

9) a) What is the equation?

b) Where is the function negative?



10) The width of a rectangle is 3 less than twice a number. The length of the rectangle is 2 more than three times the same number. If the area of the rectangle is 300 square feet:

- Write the equation that relates the information in the sentence above.
- What is the unknown number (round to 2 decimal places)?
- width = ? (round to the nearest $\frac{1}{10}$ inch)
- length = ? (round to the nearest $\frac{1}{10}$ inch)

11) You have 180 feet of fence. You want to use a large barn to enclose one side of the corral. a)

Draw an overhead view of the corral.

- Write the equation used to calculate the area.
- What is the maximum area enclosed by the fence?
- What are the side lengths of the corral?

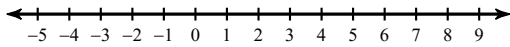
12) One order at "In-n-Out Burger" had 5 hamburgers and 5 large milkshakes. The total cost (without tax) was \$40. Another order had 7 hamburgers and 3 milkshakes. The total cost (without tax) was \$42. Let x = cost of a hamburger, y = cost of a milkshake

(a) Write two equations that relate the total cost of the order to the number/cost of the hamburgers and drinks.

(b) Solve the system of equations by graphing. What is the cost of a hamburger? What is the cost of a milkshake?

Solve each compound inequality (you'll get a compound inequality) and then graph its solution.

13) $x + 3 < 3$ or $5x > 25$



Solve each inequality. Provide the solution in "interval notation."

14) $(5x - 4)(x + 6) > 0$

15) $x(7x + 1) = 0$

Simplify.

16) $-\sqrt[4]{64} + 3\sqrt[4]{4}$

17) $2\sqrt[4]{486} + 3\sqrt[4]{6}$

Solve each system by graphing.

18) $3x + 4y = 8$
 $x - 4y = 8$

19) $5x + 3y = -12$
 $x - 3y = -6$

Solve each system by elimination.

20) $2x - y = -8$
 $-7x - y = -17$

21) $-9x + 9y = 0$
 $-3x - 2y = -15$

22)

$10x + 7y = -28$
 $-9x - 9y = 9$

Solve each system by substitution.

23) $y = 8x + 19$
 $7x + 5y = 1$

24) $-7x + y = 5$
 $-2x + 4y = 20$

Write each expression in radical form.

25) $(7a)^{\frac{5}{2}}$

Write each expression in exponential form.

26) $(\sqrt[4]{5p^2})^5$

Simplify. Your answer should contain only positive exponents with no fractional exponents in the denominator.

27) $2yx^2 \cdot 4y^{\frac{3}{4}}$

28) $(yx^2)^{-\frac{3}{2}} \cdot xy^2$

29) $\frac{2x^{\frac{3}{2}}y^2}{3x^{-1}y^2}$

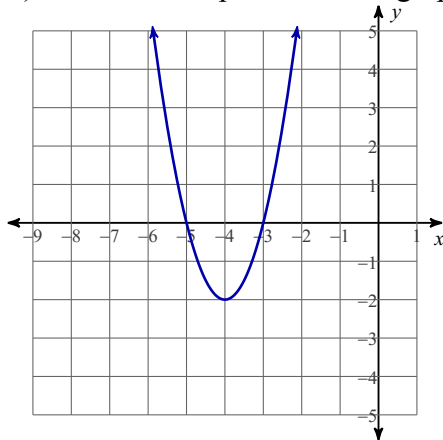
Write the slope-intercept form of the equation of the line through the given points.

30) through: $(2, -3)$ and $(-5, 1)$

Write the slope-intercept form of the equation of the line described.

31) through: $(-2, 3)$, perpendicular to $y = \frac{3}{5}x - 2$

- 32) a) Where is the function increasing?
 b) Where is the function decreasing?
 c) Where is the function positive?
 d) What is the minimum function value?
 e) Where are the extrema and what type are they?
 f) How is it related to its parent function?
 g) What is the end behavior? (use "infinity notation")
 h) What is the domain?
 i) What is the range?
 j) What is the average rate of change on the interval $-5 \leq x \leq -3$
 k) What is the equation of the graph?



- 33) Imani and Carlos are selling fruit for a school fundraiser. Customers can buy small boxes of tangerines and large boxes of tangerines. Imani sold 7 small boxes of tangerines and 13 large boxes of tangerines for a total of \$153. Carlos sold 14 small boxes of tangerines and 2 large boxes of tangerines for a total of \$114. What is the cost each of one small box of tangerines and one large box of tangerines?