Honors Algebra 2 w/Trig Name_____

Honors Geometry to HA2T Summer Assignment

Dear Incoming Honors Algebra 2 with Trigonometry Student:

The following summer assignment is a review of topics needed for Honors Algebra 2. Please make sure that you can do all of the required problems. The problems are all taken from chapters 1, 2, 3 and 4 of the Algebra 2 Book from McDougall-Littell. These chapters are review of material taught in Advanced Algebra 1 that you should be able to do at a mastery level. No answer key is provided, but when you obtain your Algebra 2 book at schedule pick up, selected answers are in the back of the textbook.

ALL WORK must be shown for credit. The problems will be *due as early as the first full day of school*. An assessment may be given on this material.

Course Guidelines and Expectations

CONGRATULATIONS on making it to the highest level of Algebra 2 offered at the Park. Listed below are some distinctions between the Honors Algebra 2 w/ Trig class and the regular Algebra 2 w/ Trig class as well as expectations and guidelines for your reference.

AN HONORS ALGEBRA 2 STUDENT SHOULD EXPECT:

- Daily homework average of 45 minutes
- More rigorous and faster-paced curriculum (includes STEM common core standards)
- Emphasis on application problems
- Focus on challenge problems v. basic problems

EXPECTATIONS OF AN HONORS ALGERBA 2 STUDENT:

- Ability to apply previous knowledge to new situations
- Ability to ask good questions
- Possess basic study skills
- Good problem-solver
- Good attention to detail
- Good organizational skills
- Good note-taker
- Good listener
- Good number sense (arithmetic skills without calculator, including fractions and integers)
- Basic knowledge of graphing calculator
- Willing to seek additional help

In Honors Algebra 2 there is a great attention to detail. The following list outlines what is expected in order to obtain full credit on your work unless stated otherwise. *There may be additional expectations that will be communicated to you in the fall.

- ALL graphs must be on graph paper or no credit will be given. You may print graph paper from the internet.
- You must show ALL work as modeled in class.
- Label all of your graphs (axis, scale if other than one, line/curve with appropriate end behavior, and axis names on story problems).
- Provide units for application problem solutions.

We look forward to meeting you!

The PCEP Honors Algebra 2 w/Trig Teachers

Chapter 1 (pp. 61-64)

Simplify the expressions.

10. $25x + 14 - 17 - 6x$

11. $6y + 12x - 12y - 9x$

12. $6(n - 2) - 8n + 40$

13. $5(2b + 3) + 8(b - 6)$

14. $3g + 9g^2 - 12g^2 + g$

15. $7t^4 + 7t^2 - 2t^2 - 9t^4$

16. A New York City taxi charges $2.50, plus $.40 for each fifth of a mile if it is not delayed by traffic. Write an expression for the cost of the ride if you travel x miles in the taxi with no traffic delays.

Solve the Equation. Check your solution.

17. $24x + 16 = 12$

18. $-6y + 15 = -9$

19. $4(q - 5) = 16$

20. $7m + 38 = -5m - 16$

21. $48j + 25 = 12j - 11$

22. $8(2n - 5) = 3(6n - 2)$

23. You buy a jacket, and the sales tax is 6%. The total cost is $79.49. Find the cost of the jacket before the tax.

24. At a vegetable stand, you bought 3 pounds of peppers for $4.50. Green peppers cost $1 per pound and orange peppers cost $4 per pound. Find how many pounds of each kind of peppers you bought.

Solve the equation for y. Then find the value of y for the given value of x.

25. $10x + y = 7$; $x = 3$

26. $8y - 3x = 18$; $x = 2$

27. $xy - 6y = -15$; $x = 5$

28. $4x = 6y + 9$; $x = 9$

29. $5x - 2y = 10$; $x = -6$

30. $x = 3$; $x = 3$

31. The formula $S = 2\pi rh + 2\pi r^2$ gives the surface area S of a cylinder with a height h and radius r. Solve the formula for h. Find h if r = 5 centimeters and S = 400 square centimeters.

32. It takes 3 hours for train to travel 175 miles. What is the average speed of the train?

33. While in vacation, your family rented a car for $293. The car rental cost $180, plus $.25 for every mile driven over 150 miles. How many miles did you drive while in vacation?

Absolute Value Inequalities

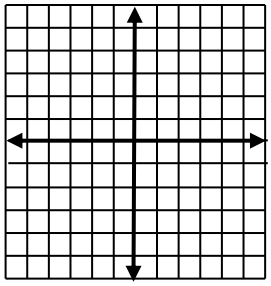
If $|a| < b$ then $-b < a < b$

If $|a| > b$ then $a > b$ or $a < -b$

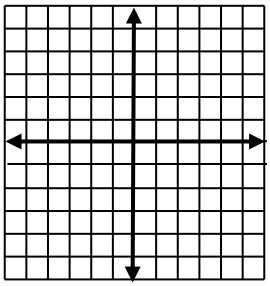
Note: b must be positive

Solve the inequality. Then graph the solution.

44. $|x-5| \geq 1$



45. $|5-2y| > 7$



47. The circumference of a volleyball should be 26 inches, with a tolerance of 0.5 inch. Write and solve an absolute value inequality that describe the acceptable circumference of a volleyball.

Chapter 4 – factoring and expanding pg. 255

Factor the expression. If the expression cannot be factored, say so.

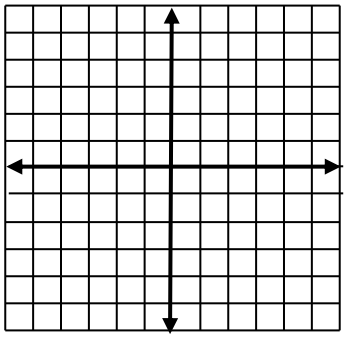
3. x^2+6x+5 4. $x^2-7x+10$ 5. $x^2-13x+22$ 6. $x^2+15x+56$

Expand and simplify

25. $(x-5)(x-3)$ 28. $(x+5)^2$ 26. $4(x+1)(x-6)$

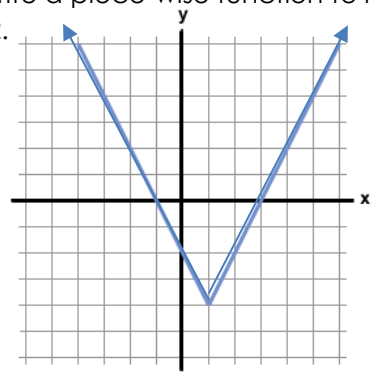
Graph the system of linear inequalities.

11. $4x + y < 1$
$-x + 2y \leq 5$



Write a piece-wise function to represent this graph.

12.



10. The cost of 14 gallons of regular gasoline and 10 gallons of premium gasoline is $46.68. Premium costs $.30 more per gallon than regular. What is the cost per gallon of each type of gasoline?

Chapter 2 (pp. 141-144)

For #5 and 6, consider the relation given by the ordered pairs. Identify the domain and range. Then tell whether the relation is a function.

5. (-2, -2), (-1, 0), (2, 6), (3, 8) Domain: _____ Range: _____ Function? _____

6. (-1, -5), (1, 2), (1, -7), (3, 4) Domain: _____ Range: _____ Function? _____

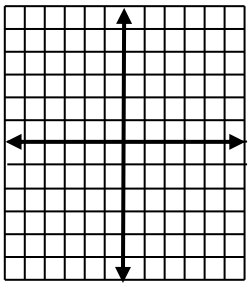
7. Tell whether f(x) = 16 – 7x is a linear function. Then find f (-5).

Find the slope of the line passing through the given points.

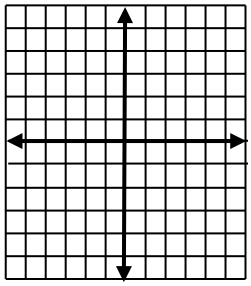
8. (-2, -1), (4, 3) 9. (1, -5), (1, 2) 10. (5, -3), (1, 7) 11. (6, 2), (-8, 2)

Graph the equation.

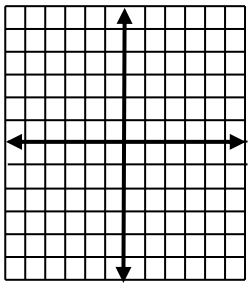
12. y = 5 - x



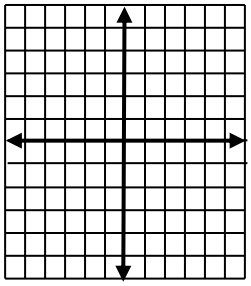
13. y – 5x = -4



14. x = 4



15. 6x – 4y = 12



Write an equation of the line that passes through the given points.

16. (-3, 4), (2, -6) 17. (-4, 5), (12, -7) 18. (-4, 1), (3, -6)

The variables x and *y* vary directly. Write an equation that relates x and *y*. Then find y when x= - 3

19. x = 6, y = - 48 20. x = -9, y = 15 21. x = -3, y = 2.4

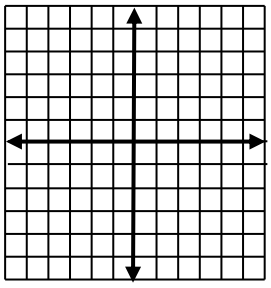
22. Charles's Law states that when pressure is constant, the volume *V* of a gas varies directly with its temperature *T* (in kelvins). A gas occupies 4.8 liters at a temperature of 300 kelvins. Write an equation that gives *V* as a function of *T*. What is the volume of the gas when the temperature is 420 kelvins?

23. Approximate the best-fitting line for the data. You may use a graphing calculator.

x	-2	-1	0	1	2	3	4	5
y	4	3	2.5	2	0.5	-1	-2	-3

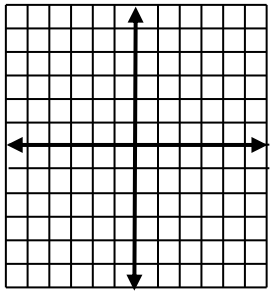
Graph the function. Compare the graph to the graph of $y = |x|$.

24. $y = |x - 3| + 2$



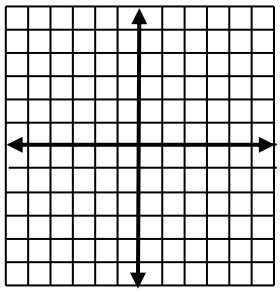
Comparison:

25. $y = \frac{3}{4}|x|$



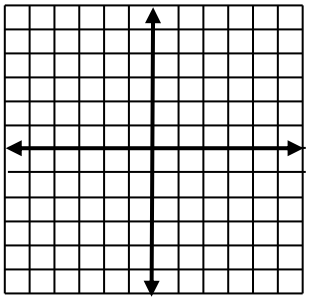
Comparison:

26. $f(x) = -4|x + 2| + 3$



Comparison:

27. Analysts predict that a company will report earnings of $1.50 per share in the next quarter. The function **$d = |a - 1.50|$** gives the absolute difference **d** between the actual earnings **a** and the predicted earnings. Graph the function. For what value(s) of **a** will **d** be $0.25?



Values: _____

Tell whether the given ordered pair is a solution of the inequality.

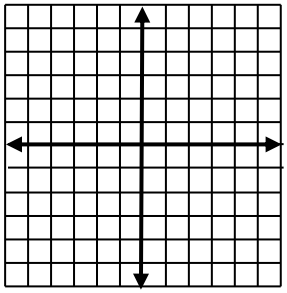
28. $-y \leq 5x$; (0, 1)

29. $y > -3x - 7$; (–4, 6)

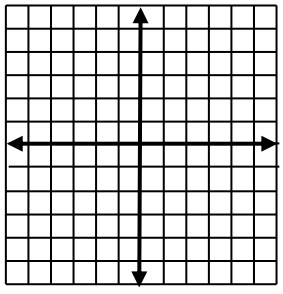
30. $3x - 4y < -8$; (–2, 0)

Graph the inequality on the coordinate plane.

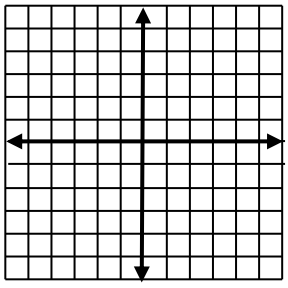
31. $-4y < 16$



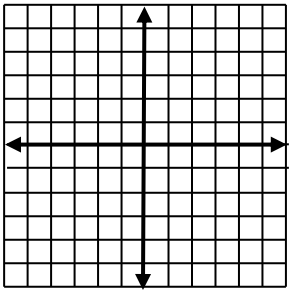
32. $y - 2x > 8$



33. $12x - 8y \leq 24$



34. An electric company buys energy from "windmill farms" that have windmills of 2 sizes, one producing 1.5 megawatts of power and one producing 2.5 megawatts of power. The company wants a total power supply of at least 180 megawatts. Write and graph an inequality describing how many each size windmill it takes to supply the electric company.

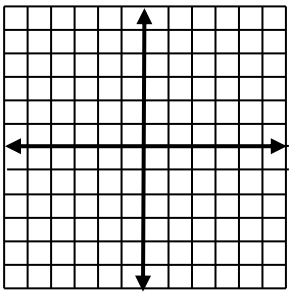


Inequality: _____

Chapter 3 (pp. 222 – 223)

Graph each system and estimate the solution. Check the solution algebraically.

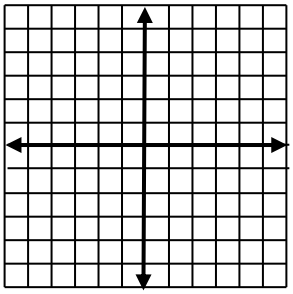
4. $2x - y = 9$
   $x + 3y = 8$



Solution: _____

Check:

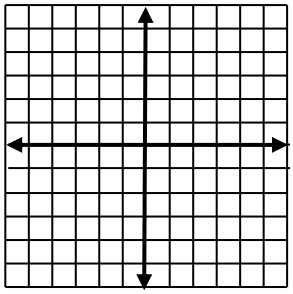
5. $2x - 3y = -2$
   $x + y = -6$



Solution: _____

Check:

6. $3x + y = 6$
   $-x + 2y = 12$



Solution: _____

Check:

Solve the system using elimination method.

7. $3x + 2y = 5$
   $-2x + 3y = 27$

8. $3x + 5y = 5$
   $2x - 3y = 16$

9. $2x + 3y = 9$
   $-3x + y = 25$