Honors Algebra 2 w/Trig Name_____

Honors Geometry to HA2T Summer Review

Dear Incoming Honors Algebra 2 with Trigonometry Student:

The following summer review includes topics needed for Honors Algebra 2 **that should have been mastered in Advanced Algebra 1 and Honors Geometry**. Please make sure that you can do all of the problems. No answer key is provided, but you can obtain math help online through various sources. If you do not remember/unfamiliar with the problem, **you are responsible** to look for help either online (Khan academy for example) or from others.

*****A skills assessment will be given on this material during the first week of school.**

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 group work, application problems and improving listening and communicating skills.
- 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 and willingness to improve
- 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. 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

Part 1

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

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

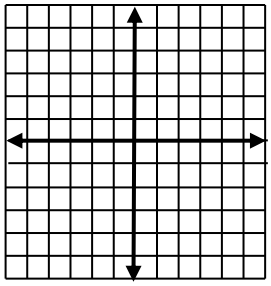
If $|a| < b$ then $-b < a < b$

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

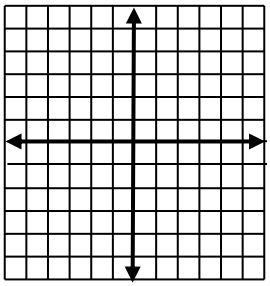
Note: b must be positive

Solve the inequality. Then graph the solution.

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



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



– factoring and expanding – REVIEW YOUR FACTORING METHODS-

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

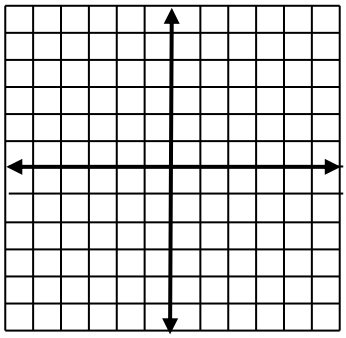
3. x^2+6x+5 4. $x^2-7x+10$ 5. $x^2-13x+22$ 6. $x^2+15x+56$

Expand and simplify

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

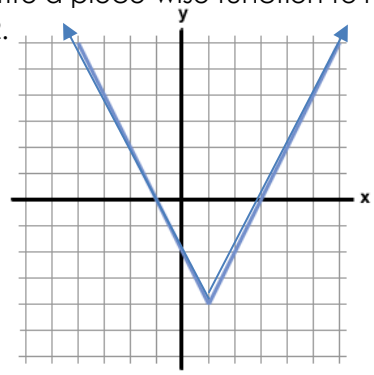
Graph the system of linear inequalities.

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?

Part 2

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? _____

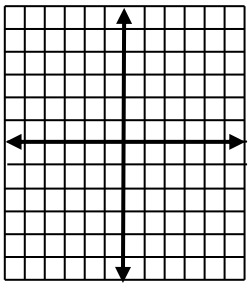
7. Tell whether f(x) = 16 – 7x is a linear function. Then find f (-5).

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

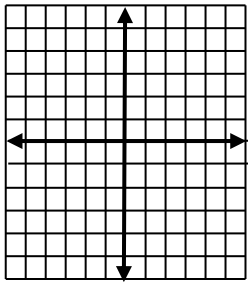
8. (-2, -1), (4, 3) 9. (1, -5), (1, 2) 10. (5, -3), (1, 7) 11. (6, 2), (-8, 2)

Graph the equation.

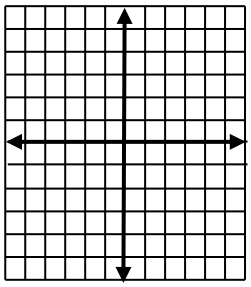
12. y = 5 - x



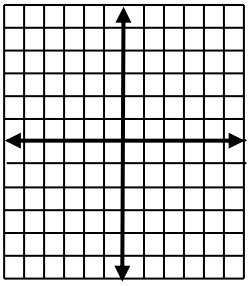
13. y – 5x = -4



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

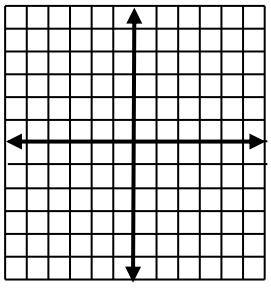
22. Charles's Law states that when pressure is constant, the volume *V* of a gas varies directly with its temperature *T* (in kelvins). A gas occupies 4.8 liters at a temperature of 300 kelvins. Write an equation that gives *V* as a function of *T*. What is the volume of the gas when the temperature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

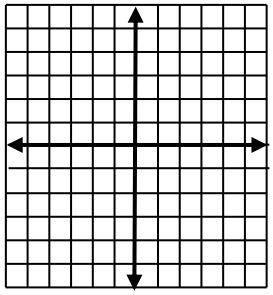
Graph the function. Compare the graph to the graph of $y = |x|$.

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



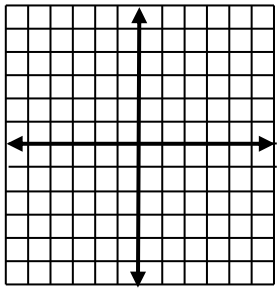
Comparison:

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



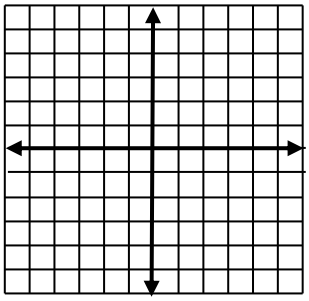
Comparison:

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)

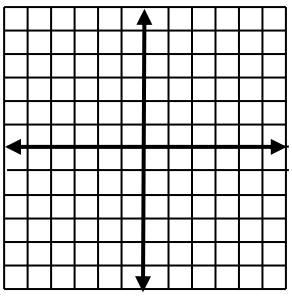
30. $3x - 4y < -8$; (–2, 0)

Multiplication table up to 15 X 15. Without Calculator

Part 3

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

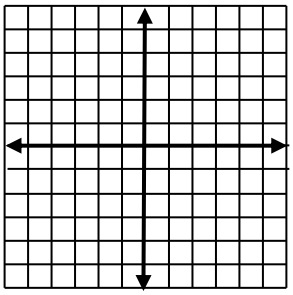
4. $2x - y = 9$
   $x + 3y = 8$



Solution: _____

Check:

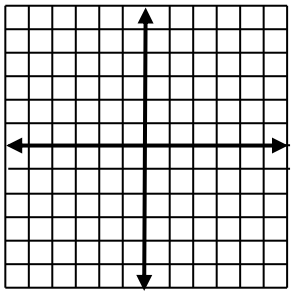
5. $2x - 3y = -2$
   $x + y = -6$



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