Welcome to Honors Algebra II!

Next year in Honors Algebra II, you will strengthen and build upon your Algebra I knowledge. Through the course of the year, we will continue to explore basic Algebra skills and topics such as: linear, quadratic, exponential, logarithmic, radical, and rational functions. We will also be studying conics, sequences, series, probability and statistics, and begin to investigate basic trigonometry. I will challenge you to not only apply acquired knowledge but to use it to develop high level thinking skills.

The summer homework packet is on my website:

School-of-fish.weebly.com

The summer homework consists of two parts:

1) Sign up for remind101. Depending on the date in which you sign up, points will be added to your overall summer homework score. To sign up, text the message @honalg to 81010. If you do not have a phone, please send an email. You may email me from either your email address or your parents email address. Doing either will allow me to send out important information that arises during the summer or school year; such as help sessions, upcoming tests and quizzes, solutions, etc. My email address is located at the bottom of this letter.

   Sign up by the following dates for the given point values:

   August 1st        5 points
   August 31st       3 points
   September 14th    1 point

2) Complete the Summer Homework Packet. This packet is a measure of what you remember from Algebra I. The packet is due the first day of school. We will be going over the summer homework packet the first few days of school. Your first assessment will be sometime during the second week of school.

Extra Help

At this time it is hard to tell what next year will look like. With that being said, I will be offering zoom help sessions as it gets closer to the beginning of the school year. The invites will be sent via remind, on my website and on Schoology.

Grading

The summer homework will be graded on completeness and correctness. Please make sure you show all of your work. All work must be shown, even on the multiple choice, to receive full credit. If you would like to earn extra credit, you may turn in your summer homework early. More information about that as it gets closer to the beginning of the school year.

Have a Wonderful Summer!!!           Mrs. Fisher           jfisher@abs.misd.net
Multiple Choice: Choose the letter for the answer that best solves the problem and put your choice on the line. Please use a CAPITAL LETTER!!!! Please show your work.

_____ 1. Which graph represents the following system of equations?

\[ y = 3x + 3 \]
\[ y = -x - 3 \]

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Solve the system of equations using the method of your choice.

_____ 2. \[ y = 2x + 3 \]
\[ y = 3x + 1 \]

A) (–2, –1) B) (–1, –2) C) (2, 7) D) (–2, –5)

_____ 3. \[ 2x - 2y = -8 \]
\[ x + 2y = -1 \]

A) (–14, 1) B) (1, 5) C) (0, 4) D) (–3, 1)
4. \( y = -x + 4 \)
\( y - 4 = x \)

A) infinitely many solutions  
B) no solution  
C) \((-4, 0)\)  
D) \((4, 8)\)

5. \( y = 5x - 3 \)
\( y = 5x - 7 \)

A) infinitely many solutions  
B) no solution  
C) \([0, -3)\)  
D)

6. **Graph the inequality**: \( y < 4x - 2 \)

A)  
B)  
C)  
D)
Solve the systems of linear inequalities by graphing.

7. \( y \leq -x - 1 \)
   \( y \geq 2x + 4 \)

A)

B)

C)

D)

Solve each equation.

8. \( 11 = -x + 15 \)
   A) \( x = 11 \)  B) \( x = -4 \)  C) \( x = 4 \)  D) \( x = 6 \)

9. \( 3(y + 6) = 30 \)
   A) \( y = 5 \)  B) \( y = 16 \)  C) \( y = 4 \)  D) \( y = -16 \)

10. \( 3x - 1 = 5x + 13 \)
    A) \( x = 2 \)  B) \( x = 7 \)  C) \( x = -7 \)  D) \( x = 1.5 \)
11. \[
\frac{x-8}{5} = \frac{2}{4}
\]
- A) \(x = \frac{9}{2}\)
- B) \(x = \frac{5}{2}\)
- C) \(x = \frac{21}{2}\)
- D) \(x = 18\)

12. Rewrite the equation for \(y\).
- 2\(x + 4y = 8\)
- A) \(y = -\frac{1}{2}x + 2\)
- B) \(y = \frac{1}{2}x + 2\)
- C) \(y = -\frac{1}{2}x + 8\)
- D) \(y = -2x + 2\)

Solve the inequality. Then graph the solution.

13. \(x - 1 \leq -9\)
- A) \(x \leq -\frac{9}{1}\)
- B) \(x \leq -10\)
- C) \(x \leq 10\)
- D) \(x \leq -8\)

Solve the compound inequality. Then graph the solution.

14. \(-8 \leq 2x - 4 < 4\)
- A) \(0 \leq x < 6\)
- B) \(-2 \leq x < 4\)
- C) \(-2 \leq x < 0\)
- D) \(-6 \leq x < 0\)

15. \(2x - 2 < -12 \text{ or } 2x + 3 > 7\)
- A) \(x < -5 \text{ or } x > 2\)
- B) \(x < -7 \text{ or } x > 5\)
- C) \(x < -5 \text{ or } x > 5\)
- D) \(x < -12 \text{ or } x > 2\)
Solve the absolute value equation. If there is no solution, choose no solution.

_____ 16. \( |j - 5| = -20 \)

A) no solution  
B) \( j = -25 \)  
C) \( j = -25 \) or \( 15 \)  
D) \( j = -15 \)

Solve the absolute value inequality. Then graph the solution.

_____ 17. \( |d + 2| \geq 6 \)

A) \( d \leq -4 \) or \( d \geq 4 \)  
B) \( d \leq -8 \) or \( d \geq 4 \)  
C) \( d \geq -8 \) or \( d \geq 4 \)  
D) \( d \leq -8 \) or \( d \geq 4 \)

Simplify the exponents completely.

_____ 18. \((-8.6)^0\)

A) -1  
B) 0  
C) -8.6  
D) 1

_____ 19. \((4)^{-2}\)

A) \(-\frac{1}{16}\)  
B) 16  
C) \(\frac{1}{16}\)  
D) -8

_____ 20. Find the slope of the line that passes through the pair of points: \((1, 7), (10, 1)\)

A) \(\frac{3}{2}\)  
B) \(-\frac{2}{3}\)  
C) \(-\frac{3}{2}\)  
D) \(\frac{2}{3}\)

Find the slope \((m)\) and \(y\)-intercept \((b)\) of the lines.

21. \(14x + 4y = 24\)

A) \(m = \frac{-2}{7}; b = 6\)  
B) \(m = \frac{-7}{2}; b = 6\)  
C) \(m = \frac{-7}{2}; b = 24\)  
D) \(m = \frac{7}{2}; b = -6\)
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Use the graph on the right to answer #53-54.

22. What is the slope of the line?
   A) $m = 3$  B) $m = -3$
   C) $m = \frac{1}{3}$  D) $m = -\frac{1}{3}$

23. Write the slope-intercept form of the equation for the line.
   A) $y = 3x - 1$  B) $y = -3x - 1$
   C) $y = \frac{1}{3}x + 1$  D) $y = \frac{1}{3}x - 1$

24. Graph the equation: $y = \frac{3}{4}x - 3$

   A)  
   B)  
   C)  
   D)
25. Tell whether the lines for each pair of equations are parallel, perpendicular, or neither.

\[7x - 4y = 4\]
\[x - 4y = 3\]

A) perpendicular  B) parallel  C) neither

**Free Response:** You will need to show how to mathematically solve each problem. Work must be included.

Use the following word problem for questions #26-28.

Suppose you receive $100 for a graduation present, and you deposit it in a savings account. Then each week thereafter, you add $5 to the account but no interest is earned. Let \(y\) represent the amount in the account and \(x\) represent weeks.

26. Write an equation in slope-intercept form to represent the situation.

27. Use the equation to find when you will have $310 in the account.

28. Use the equation to find how much will be in the account after 12 weeks.

Use a system of equations to solve the following problem.

29. A jar containing only nickels and dimes contains a total of 60 coins. The value of all the coins in the jar is $4.45. Solve by elimination to find the amount of nickels and dimes that are in the jar.
Solve the equation.

30. \(3p - 1 = 5(p - 1) - 2(7 - 2p)\)

31. \(4|n - 1| = 16\)

Simplify the exponents.

32. \((2a^4)^3\)

33. \(3x^5 \cdot 2x^2\)

34. \(\frac{x^{14}}{x^7}\)

35. Write an equation in point-slope form for the line through the given point with the given slope.
   \((4, -6); m = \frac{3}{5}\)

36. Write an equation in slope-intercept form for the line through the given points.
   \((0, -1) \text{ and } (6, 2)\)

37. Write an equation for the line that is parallel to the given line and passes through the given point.
   \(y = -5x + 3; \ (−6, 3)\)