Name: _____

Honors Math Midterm Study Assignment

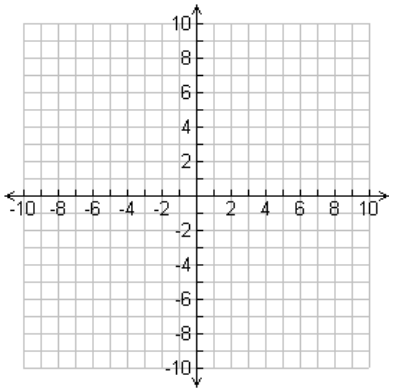
Complete each problem. Show ALL work. No calculator allowed!

**********What can I do if I don't remember how to do one???**********

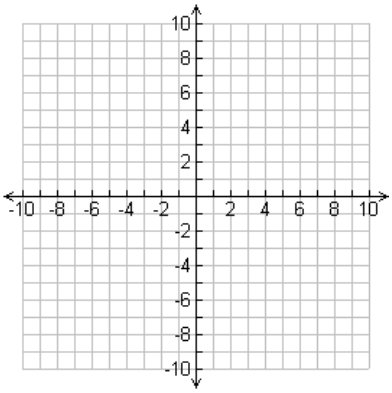
- Look in your notes
- Look up old lessons on my website (these questions are in the order we learned them this year)
- Have a friend help you
- Find time to ask Mr. Lischwe
- Whatever your solution, find a way to re-learn it. Do not just guess and move on!

Graph each equation.

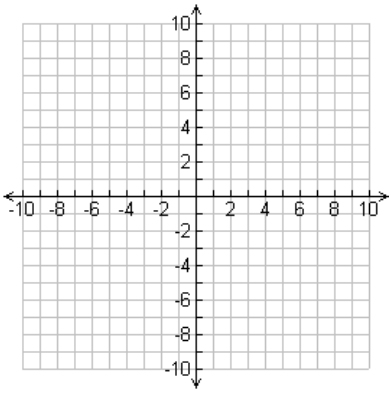
1) $y = -\frac{2}{5}x + 3$



2) $y = 4x - 2$



3) $-4x + 3y = 24$



Find the slope of the line between the two points or from the table. Simplify if possible. $\left(\frac{y_2-y_1}{x_2-x_1}\right)$

4) (-3, 7) and (6, 5)

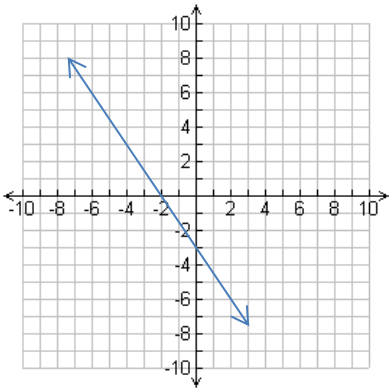
5) (3, 6) and (-1, 12)

6)

x	0	3	6	9	12
y	14	8	2	-4	-10

Write an equation in slope-intercept form. (y = mx + b)

7)



8)

x	**y**
-2	-3
-1	1
0	5
1	9
2	13

9)

(Remember, go by the numbers, not the boxes! Making a table might help.)

10) Laura got a new puppy, which grew the same number of pounds per year. The puppy was originally 8 pounds. After 4 years, it was 20 pounds. Write an equation that gives the weight **y** of the dog **x** years after she bought it.

Say whether each is: A) Not a function; B) A function but nonlinear; C) A function and linear

11)

x	y
1	22
2	24
1	26
2	28
3	30

A) Not a function
B) A function but nonlinear
C) A function and linear

12)

x	y
3	8
4	11
5	14
6	21
7	25

A) Not a function
B) A function but nonlinear
C) A function and linear

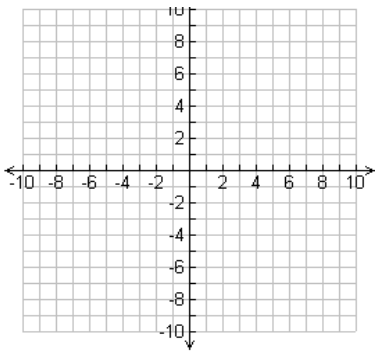
13)

x	y
-2	-7
-1	-2
0	3
1	8
2	13

A) Not a function
B) A function but nonlinear
C) A function and linear

Need to remember 2 different rules – what makes something a function? And what makes something linear?

14) Draw six points on the graph that would **not** be a function. Then explain why it is not a function.



15) Create two equations that would be nonlinear. Each equation should be in the form y = _____.

16) Create two equations that would be linear. Each equation should be in the form y = _____.

For 17-19, use the following functions: $\boldsymbol{g(x) = (2 - x)^2}$ $\boldsymbol{h(x) = \frac{x-8}{4}}$

17) Find h(4).

18) Find g(6).

19) Find g(-7).

20) Convert to a decimal. Show your work: $\frac{5}{16}$

21) Convert to a decimal. Show your work: $\frac{13}{12}$

Convert to a fraction. Simplify if necessary.

22) 0.1

23) 0.12

24) 0.123

25) $0.\overline{1}$

26) $0.\overline{12}$

27) $0.\overline{123}$

28) Write each letter in the correct box, according to whether it is rational or irrational.

Rational	Irrational

A: $\frac{6}{11}$
B: 0.4285
C: $0.\overline{3}$
D: $0.878787\ldots$
E: $2.846672\ldots$
F: $\sqrt{8}$
G: $\sqrt{36}$
H: $\sqrt[3]{125}$

29) Estimate the value of $\sqrt{58}$. Do not use a calculator. Explain your reasoning in words.

Solve each equation. Find ALL possible solutions.

30) $x^2 = 64$

31) $x^2 = -121$

32) $x^3 = -27$

Solve each equation. (2 of them are "weird" ones – no solution or infinite solutions)

33) $3(2x + 4) + 3x = -x + 72$

34) $8x - 4 = -10 + 8x$

35) $6x + 3 = 12x + 3$

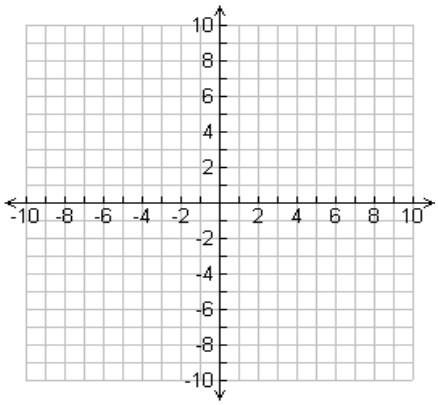
36) $-2(3x - 8) + 7x = 19 - 5x + 6x - 3$

Solve each system of equations:

37) (Substitution) $\begin{cases} y = 2x - 3 \\ 4x + 2y = 34 \end{cases}$

38) (Elimination) $\begin{cases} 6x - 3y = 3 \\ 2x + 5y = 19 \end{cases}$

39) (Graphing) $\begin{cases} y = x - 3 \\ y = -\frac{1}{2}x + 3 \end{cases}$



List of Topics for the Midterm – Honors Math 8

WAYS TO STUDY:

- Review notes
- Review homework assignments
- Review quizzes (ask me)
- Review lessons from my website: (lischwe.weebly.com)
- Looking at the textbook or textbook website (connected.mcgraw-hill.com)
- Replay the Kahoots: Links will be on my website after we do them in class! (You will have to create a free Kahoot account. It's easy.)

Unit 1

- Converting fractions to decimals
- Converting decimals to fractions
- Converting repeating decimals to fractions
- Finding square roots/cube roots that are whole numbers
- Estimating roots that are decimals
- Solving x^2 and x^3 equations
- Rational vs. Irrational numbers

Unit 2

- What is/is not a function
  - Table
  - Graph
  - Situation
- Evaluating using function notation (like f(3))
- Linear vs. nonlinear equations
- Linear vs. nonlinear tables
- Writing an equation from a table
- Graphing functions using a table
- When you should/should not connect the points
- Graphs of stories (Tom climbed a hill, then ran down, etc.)

Unit 3

- Linear vs. nonlinear
- Finding slope from a graph
- Finding slope from 2 points without a graph
- Writing y = mx + b equations from a graph
- Graphing y = mx + b equations
- Interpreting the meaning of the slope and y-intercept in a story problem
- Comparing tables/graphs/equations/situations
- Graphing standard form equations (Ax + By = C) by making a table OR getting y by itself
- Proportional vs. nonproportional

Unit 4

- Solving equations:
  - Variables on one side
  - Variables on both sides
  - With fractions
  - Distributive property/combining like terms
- Writing equations from a real-world situation
- Equations with no solution or infinite solutions

Unit 5

- Solving systems of equations by:
  - Graphing
  - Substitution
  - Elimination
- System of equations story problems
- Checking the answer of a system