

MTH 60, Fall Term 2010

Test 1 – Given November 17, 2010

Due: 2:30 PM, Monday, November 22

Name _____

You may not receive help of any kind with the problems on this test nor may you simply change the numbers and receive help with those similar questions. Work all of your practice homework questions and receive help with those before you even begin working on this test. Once you have started working on this test your window of opportunity to receive help is closed.

You may not talk with your fellow students about this test. You may not discuss your answers with one another nor may you show each other your answers.

Bottom line – do not cheat.

You may look at your notes and in your textbook while working on this test. Be mindful of the fact, however, that all of the new material covered on this test will also be covered on test 4 and the final exam. Both of those tests will be in-class and you will not be allowed to use notes or your text when taking those tests. Consequently, when you are working the practice problems (before working on this test) you need to do so with a mind towards eventually taking in-class tests over the material.

1. State the solution set to each of the following inequalities using interval notation. In each case state your answer using a complete sentence. (6 points)

a. $x \geq 7$

b. $y < 0$

c. $-3 \leq t < 12$

2. Answer each of the following questions showing you work and stating your conclusions in a manner consistent with that shown in class and on the keys posted on-line. (12 points)
 - a. Drucilla was trying to sell her used Droid on Ebay. She set her minimum bid at \$60 and got no takers. She decided to decrease the minimum bid by 15%. What was the new minimum bid for Drucilla's used Droid?
 - b. Madelyn received a 10% pay raise at the mandolin shop. Madelyn's new wage was \$18.04/hr. What was Madelyn's wage before the pay raise?
 - c. Scammers was having a "50% off sale" on scanners. The night before the sale, however, they raised all of their prices by 50%. What was the real percentage discount (from the original price) after the increase of 50% was followed by a 50% reduction in the higher price?

3. Find the solution set to the inequality $3 - (x + 2) > 2 + 2(x - 2)$. Show all relevant work. State the solution set using set builder notation. (8 points)

4. Find the solution set to the inequality $5x - (2 - 3x) > 4 + 2(4x + 2)$. Make sure that your conclusion is really clear. (7 points)

5. The volume of a sphere of radius r is given by the formula $V = \frac{4}{3}\pi r^3$. Find, to the nearest tenth, the volume of a sphere whose radius is 6 cm. **Include the unit while making the calculation.** (6 points)

6. Find the slope of the line connecting the stated pair of points. Show your calculation and make sure that your conclusion is clear. (8 points)

a. the line connecting $(-3, 6)$ and $(2, -4)$

b. the line connecting $(7, 12)$ and $(7, -8)$

7. Find, if they exist, the x -intercept and the y -intercept for each of the following lines. Show any relevant work and make sure that your conclusions are clear (as in *write sentences*). (15 points)

a. The line $5x - 7y = 35$.

b. The line $y = \frac{x}{3} + 2$.

c. The line $x = 14$.

8. Consider the line with equation $8x - 3y = 10$. (12 points)
- State two points on the line where both coordinates are integers.
 - Use the two points from part (a) to determine the slope of the line. Make sure that your conclusion is clear.
 - Manipulate the equation into slope-intercept form. Show the relevant steps!

9. Graph the lines with the equations stated in the captions of figures 1-4. (12 points)

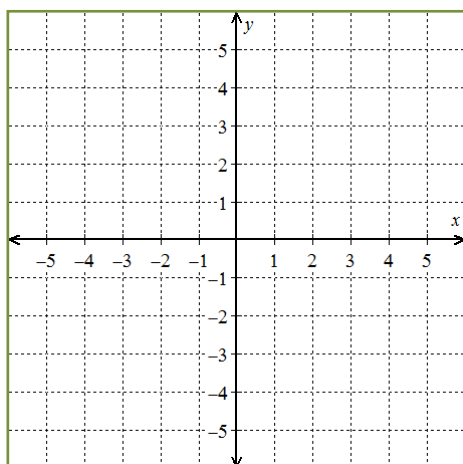


Figure 1: $y = -\frac{x}{2} + 3$

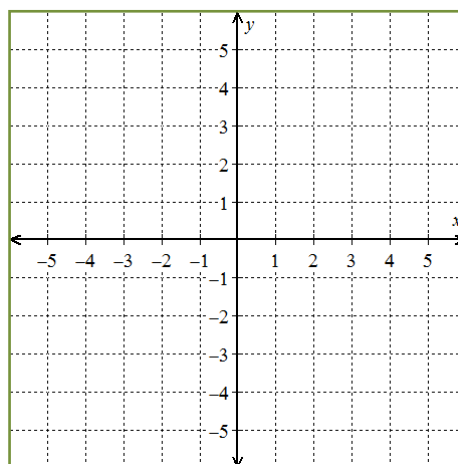


Figure 2: $2x - 2y = 3$

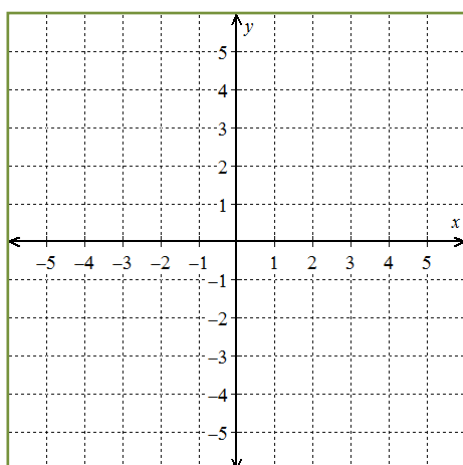


Figure 3: $x = \frac{3}{2}y - 3$

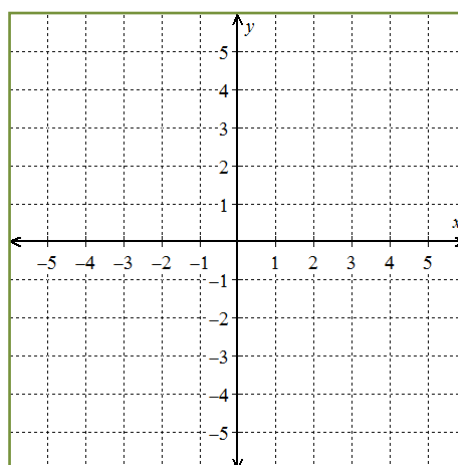


Figure 4: $2x + 6 = 0$

10. Find the equation of the line that both shares an y -intercept with and is perpendicular to the line with equation $3x - 6y = 12$. Make sure that both your reasoning and conclusion are clear. (8 points)

11. Mr. Mondo purchased a house in 1985. Six years later the value of the house was \$315,000. Thirteen years after it was first purchased, the house was worth \$449,400. A graph of the value of Mr. Mondo's house is shown in Figure 4. Find and interpret the slope as a rate of change. Make sure that you include the units when finding the slope! (6 points)

