

Mth 098 – Intermediate Algebra – Practice Exam 3

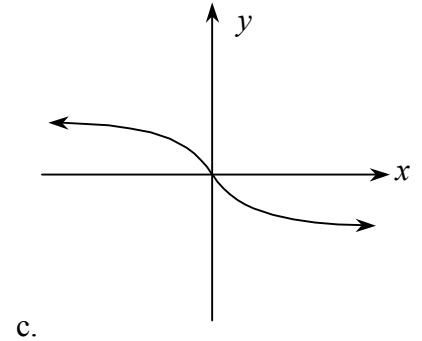
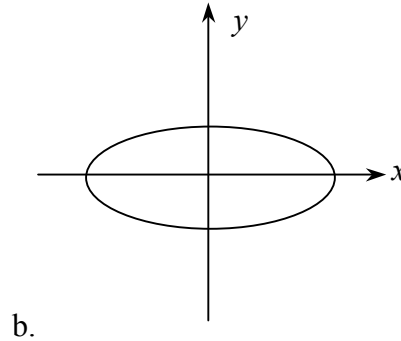
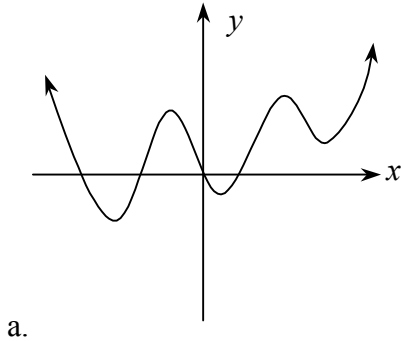
NOTE: This exam should not be taken as a complete list of possible problems. It is merely intended to be an example of the difficulty level of the regular exam. To best utilize it as a *practice* exam, try to complete the exam without notes or distractions. Try to emulate the classroom environment as much as possible.

1. Determine whether the given ordered pair is a solution to the given equation.

a. $(1, 2)$; $y^2 = x^2 + 2x - 1$

b. $(2, 1)$; $-a^2 + 2b^2 = -2$

2. State whether each graph is the graph of a function.

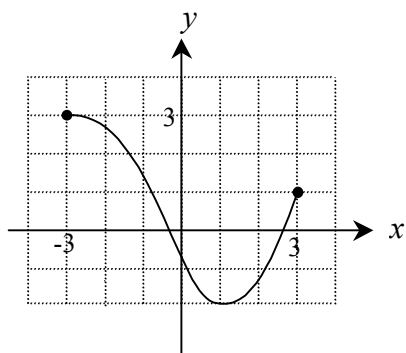


3. Evaluate $h(t) = -16t^2 + 20t$ for the indicated values.

a. $h(0)$

b. $h(1)$

4. Given the graph of $y = f(x)$ below, find the domain and range of f .



5. Find the slope of each line.

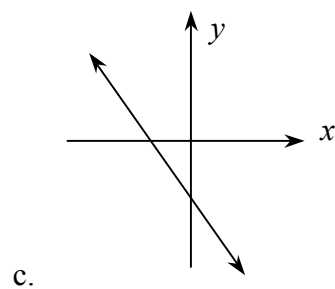
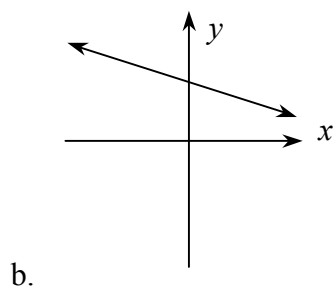
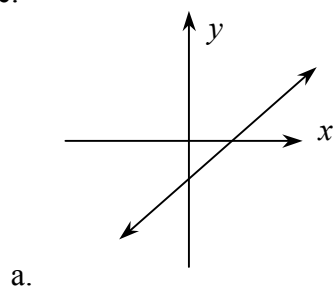
a. $2x + 3y = 6$

b. $y = 3$

c. $y = -x - 1$

6. Find the slope of the line through the points $(-2, 0)$ and $(-2, 2)$.

7. Given the graphs below, state whether $m > 0$ or $m < 0$ and whether $b > 0$ or $b < 0$ for each line.



8. Find an equation in slope-intercept form for the line whose slope is $-\frac{2}{3}$ and whose y-intercept is 3.

9. Find an equation for the line through the points $(2, 3)$ and $(2, 5)$.

10. Determine whether the two given lines are parallel, perpendicular, or neither.

$$2x - y = 4$$

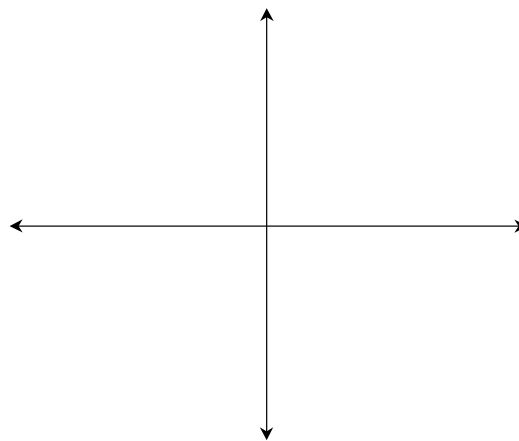
$$2x + 4y = 8$$

11. Suppose we assume height and ideal weight are linearly related. The ideal weight of a woman 62 in. tall is approximately 125 lbs., and the ideal weight of a woman 66 in. tall is approximately 137 lbs. Let x = height and y = ideal weight and write an equation in slope-intercept form relating a woman's height to her ideal weight.

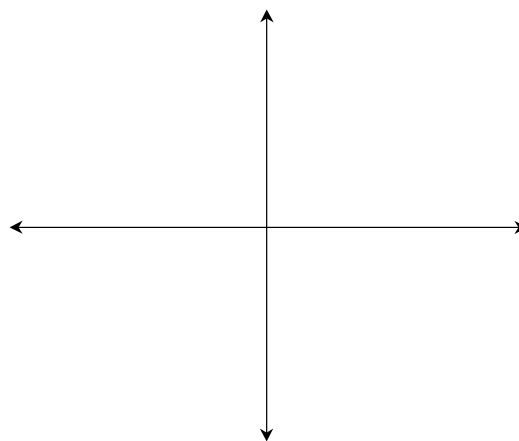
Note: The numbers used in this example are approximations. "Ideal weight" is different for every body type and age group. For more information, see the University of Michigan's Health System at <http://www.med.umich.edu/1libr/primry/life15.htm>.

12. Graph each linear inequality. Clearly label your graph.

a. $3x - 4y \leq 12$



b. $y > 2x - 1$



13. Solve each system using the given method.

a.
$$\begin{cases} 3a - 6b = 9 \\ -a + 2b = -3 \end{cases}; \text{ addition (elimination)}$$

b. $\begin{cases} m + 2n = 4 \\ 2m + n = 8 \end{cases}$; substitution

14. In a marathon, there are many runners who actually walk a portion of the race. Let's assume a particular runner walks at a rate of 3 miles per hour and jogs at a rate of 5 miles per hour. If the complete race is 26 miles and took her 6 hours, how long did she walk? (i.e. How many *hours* did she walk?)

15. Graph the solution to the system of inequalities. Clearly label any corner points.

$$\begin{cases} x \geq 0 \\ y \geq 0 \\ 4x + 3y \leq 24 \\ 2x + 3y \leq 18 \end{cases}$$

