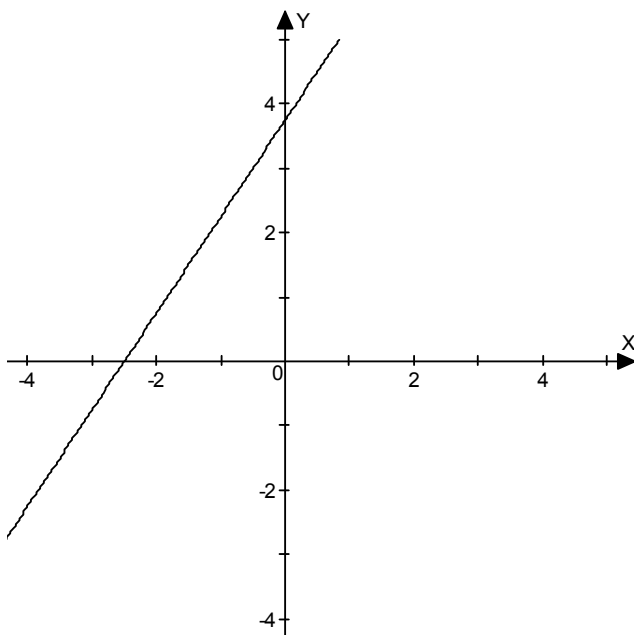


## Algebra II Chapter 2 Practice Test

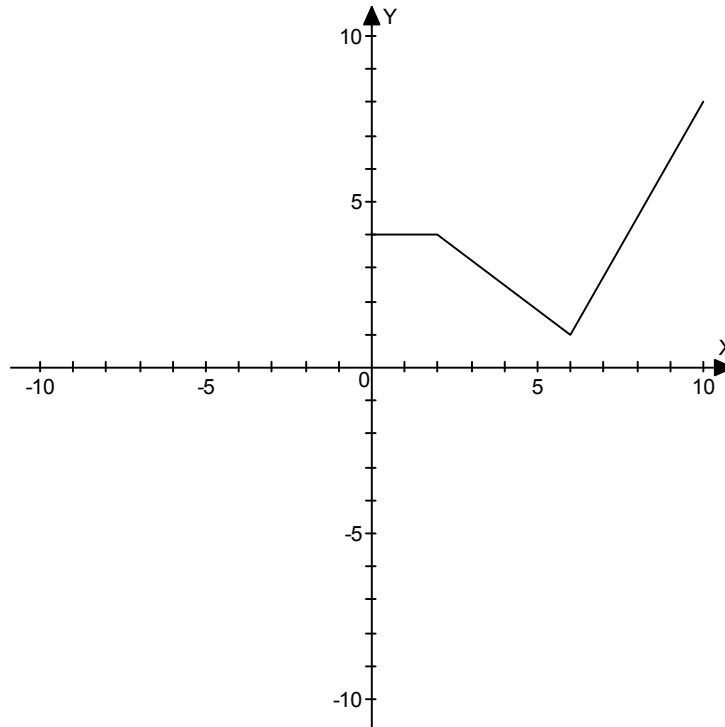
Name: \_\_\_\_\_

Do problems by hand, showing work unless otherwise instructed. Calculators are OK.

- For the points  $A = (5, -4)$  and  $B = (1, -12)$ 
  - Find the midpoint of  $\overline{AB}$
  - Find the length of  $\overline{AB}$
  - Find the slope of  $\overline{AB}$
  - Find the equation of the line through A and B
  - Find the coordinates of point C such that A is the midpoint of  $\overline{BC}$
  - Honors/Extra Credit: What point is one-third of the way from A to B?
- Find the center and radius of these circles
  - $(x+11)^2 + (y-2)^2 = 49$
  - $x^2 + y^2 - 4x + 8y = -16$
- Give the equation of the following lines. You may leave your answer in any form you wish.
  - through  $(3,8)$  with a slope of 2
  - parallel to  $x + 5y = 20$  and passing through  $(8,0)$
  - having an  $x$ -intercept of 6 and a  $y$ -intercept of -3
  - perpendicular to  $x = -8$
  - the graph below. Answers do not have to be exact.



4. a) The equation  $2y = 9x^3 + 5x$  has what type of symmetry? Explain how you know your answer is correct.
- b) Complete the graph if the graph is symmetric with respect to the  $x$ -axis



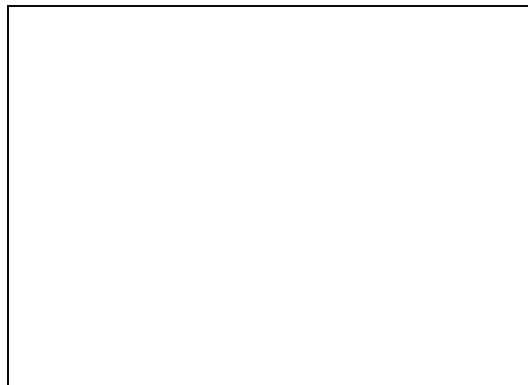
- c) Give the equation of a graph that is symmetric with respect to the  $y$ -axis only. It may be as simple or complex as you wish.

5. Use your calculator to do the following. Give answers rounded to the hundredth place. **Do not solve by hand.**

a) Solve  $x^2 - 2x = 9$

b) Solve  $x^3 + 4x + 5 < 0$

c) Graph  $y = \sqrt{8x - x^2}$  in a  $[-2, 10]$  by  $[-2, 6]$  window (this is  $x$ 's by  $y$ 's). Make a quick sketch of what you see in your window in the box below



6. A car is bought for \$22,000 and is worth \$15,000 4 years later. Assuming the value of the car can be represented by a linear formula, answer the following:
- What is the equation that relates the value of the car to how old it is?
  - What does the  $y$ -intercept represent in this context?
  - What does the  $x$ -intercept represent?
  - When is the car worth \$10,000?
7. The value of a lot on an island is jointly proportional to the area of the lot and the quantity of water that its well produces. One lot, 200 ft by 300 ft in size has a well that produces 10 gallons of water per minute and is worth \$480,000.
- Use this information to write an equation for the value of a lot,  $V$ , in terms of its area  $A$  (measured in square feet) and its water quantity  $W$  (measured in gallons per minute)
  - What is the value of a lot on the same island if this lot is 400 ft by 400ft and its well produces 4 gallons of water per minute?
  - Honors/Extra credit: Give the appropriate information for a lot that is worth \$1 million on this island.

Honors/ Extra Credit: The graph of a set is a rectangle whose vertices are  $(3,-5)$ ,  $(3,7)$ ,  $(8,7)$  and  $(8,-5)$ . (the edges and the interior are included in the set). Give a formula for this set.

#### Chapter 2 Practice Test Answers:

- $(3,-8)$
  - $4\sqrt{5}$
  - 2
  - $y + 4 = 2(x - 5)$  is one possible answer
  - $(9,4)$
  - $(\frac{11}{3}, -\frac{20}{3})$
- C:  $(-11, 2)$  r: 7
  - $(2, -4), 2$  (complete the square on it)
- $y - 8 = 2(x - 3)$
  - $y - 0 = -\frac{1}{5}(x - 8)$
  - $y = \frac{1}{2}x - 3$
  - $y = \text{anything}$
  - $y = 1.5x + 3.8$
- origin, ...
  - flip part down into 4<sup>th</sup> quadrant
  - lots of answers,  $y = x^2$
- 2.16, 4.16
  - $(-\infty, -1)$
  - Just do on calculator
- $y = -1750x + 22,000$
  - value of the car when new
  - time when car is worth nothing
  - 6.857 years later or 6 years 10 months
- $V = .8AW$
  - \$512,000
  - lots of combinations work
- $3 \leq x \leq 8, -5 \leq y \leq 7$