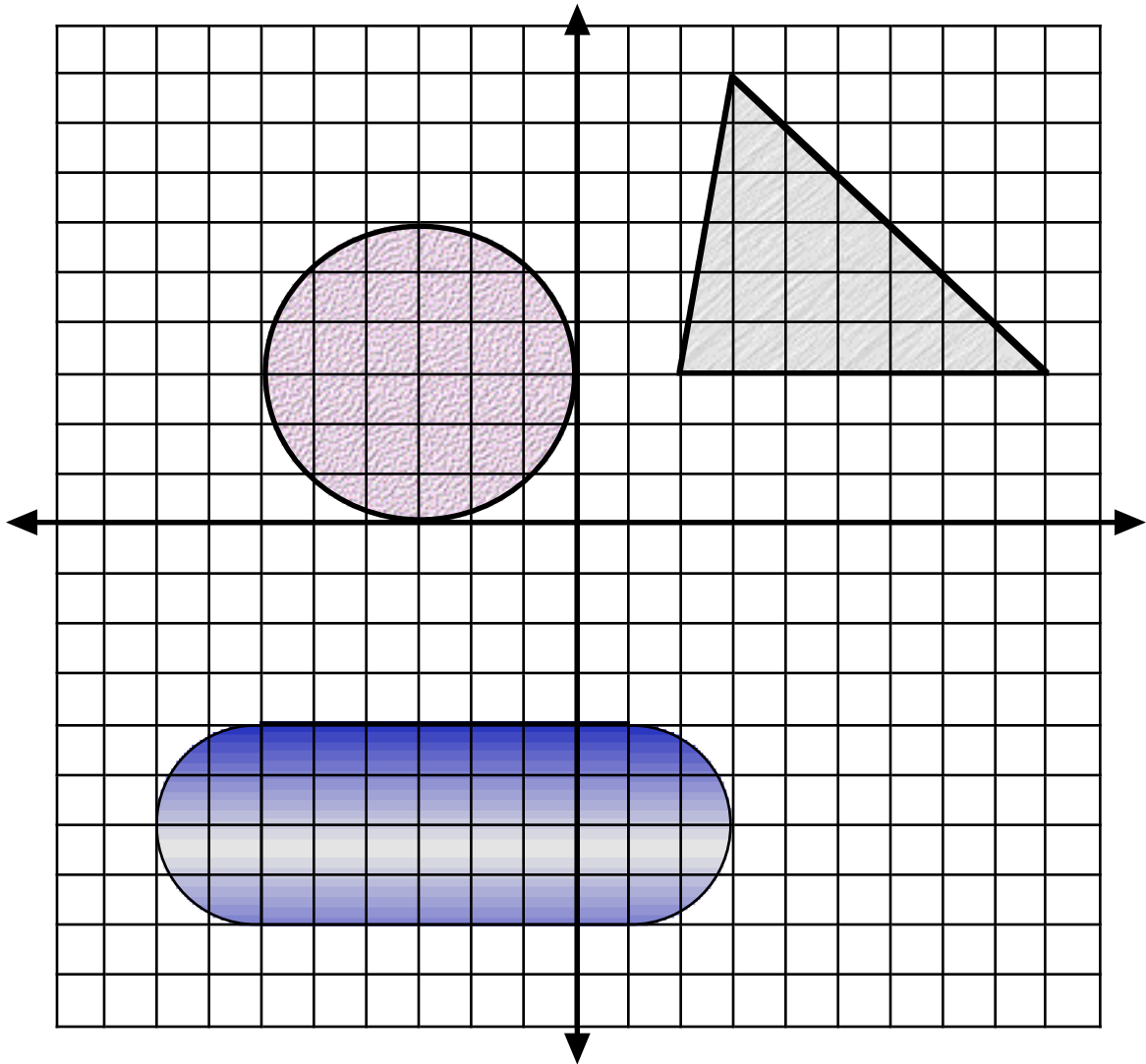


Problem Set 2.1
Algebra I

Name _____ Period _____

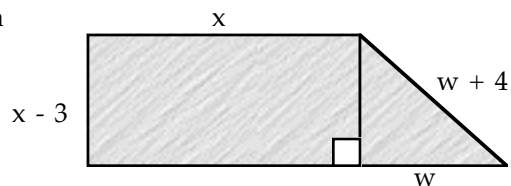
1 Graphing in the coordinate plane



- Identify and label the 4 quadrants
- Identify and label the axes

1 Find the exact area of all figures. Determine the exact perimeter/circumference of the figures in Quadrants II and III

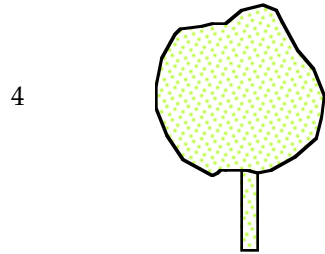
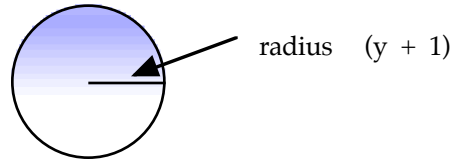
2 Develop expressions for the exact area and perimeter of the figure.



Problem Set 2.1
Algebra I

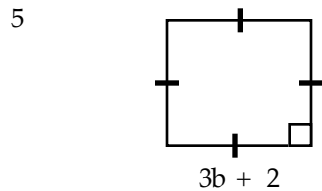
Name _____ Period _____

- 3 Develop expressions for the exact area and circumference of the circle.



This tree has a current height of 80 feet. If it grows at a rate 15% a year, how tall will the tree be in September, 2008?

Approximately how many yards high will the tree be in 2008?



Develop expressions for the exact area and perimeter of this square.

If $b = 2$, what would be the area of the triangle created if a diagonal was drawn?

- 6 **Variable expressions** (write a variable expression for each)

- a) the quantity three more than twice number 'x' divided by the sum of y and four
- b) the quantity nine less than two times a number 'n' subtracted from the quantity the difference between p and 7
- c) three times a number 'h' divided by the quantity three less than $1/2$ of k
- d) the quantity two more than 'z' divided by the product of 5 and 'z'

- 7 **Evaluate** the following variable expressions

- a) $3a^2 - a + 5$ for $a = 3, -2, 0$ and -1
- b) $y^2 - 2x^2 - 3 - y$ for $x = 2$ $y = -4$
- c) $1/2m^2 - 4n + 7$ for $m = 4$ $n = -1/2$

- 8 What strategies could be used to prove that $3b^2 \neq (3b)^2$.

- 9 The stopping distance for a motor vehicle is given by the following equation

$$\text{distance} = x + \frac{x^2}{20} \quad \text{where } x \text{ is the speed in miles per hour (mph)}$$

Find the difference between the stopping distance of a car going 10 mph and a car going 20 mph.

Problem Set 2.1
Algebra I

Name _____ Period _____

- 10 Emily charges \$5 for riding her bicycle to the home where she is baby-sitting. After arriving at the home, she charges \$7.50/hour for baby-sitting. She charges an additional \$5 for her return trip home after her work has been completed.
- Develop an expression for the total charge for Emily's baby-sitting if she works 'h' hours at a home.
 - If Emily worked for the Henderson's for 6 hours, would she have enough to pay for her sister's \$ 53.25 birthday present?
- 11 a) After raining some 12 inches in January, it rained only 7 inches in February. By what percent did the amount of rain decrease?
- b) Jane purchased a coat which originally sold for \$48, for \$30. By what percent was the coat discounted?
- c) If the length of the sides of a square were doubled, by what percent will the area be increased?
- 12 At the end of 8th grade, Thomas stood five feet tall. At the end of 9th grade, he measured five feet nine inches. By what percent did his height increase over that period of time?
- 13 *Functions* Domain - Range (page 48 Algebra text)
- A function is the relationship between two quantities: _____ and the _____
- The input values are called the _____. The output is the _____
- a) You're going to the Amusement park. They charge \$8 for admission and \$3/ride. If you plan on going on no more than 6 rides, find the range of costs for your day.
- b) You are hired to take care of a cat. You receive \$5 for showing up then \$7.50/hour for each hour you work. If the owners say they will return with 7 hours, what is the 'range' of possible earnings?
- c) In Hawaii, you decide to rent a snorkel and fins. The cost is \$4 plus \$2.50 for each hour of the rental. Find the 'range' of cost from 1 to 5 hours of renting the equipment.
- 14 The length of a rectangle is 2 more than three times the width. The perimeter is 52 inches.
- a. Develop an equation to determine the lengths of the sides.
- b Find the area of the rectangle and the area of the triangle created when a diagonal is drawn.

Problem Set 2.1
Algebra I

Name _____ Period _____

15 Simplify the following. (Combining like terms)

a) $-c + 3c - 4c - 6c - 7 + 5m + 2c$

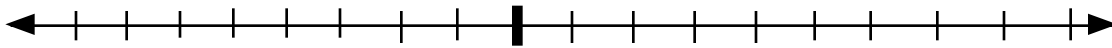
b) $2x + y + 3(x+y) - 4$

c) $3b - (4 - b) - 2(b - 2)$

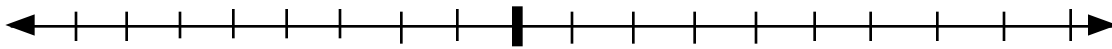
d) $-(2b - 3) - 7b - 2(-b - 3)$

16 Graphing Inequalities

a) $k > 3$ and $k < -2$

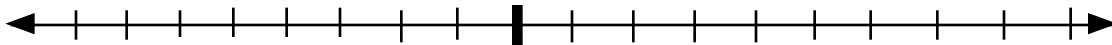


b) $|b| \geq 2$

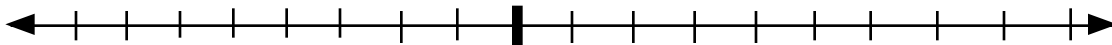


17 Extension Graphing Inequalities

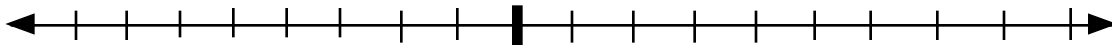
a) 'h' is greater than or equal to 3 Inequality _____



b) 1 more than a number 'k' is greater than 6. Inequality _____



c) Two times 'z' plus 3 is greater than 7 Inequality _____



d) Two times 'a' increased by 5 is greater than 9 Inequality _____

