

# Pre-Algebra: Problem Set A

Mr. Chamberlain

Name \_\_\_\_\_

Date \_\_\_\_\_ Period \_\_\_\_\_

*Calculators and reference sheets may be used*

**SHOW ALL WORK!**

1. You walk into the department store and see the following signs:

**Spring Sale!!**

- 50% off all Winter Coats!!
- 30% off all other items

*Special Sale*  
**Today Only!!**

Take an additional  
20% off all Spring  
Sale prices

Compute both the spring sale price and today's sale price for the following items.

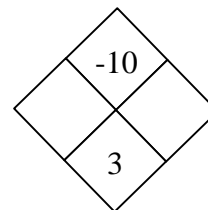
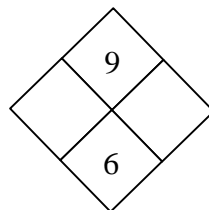
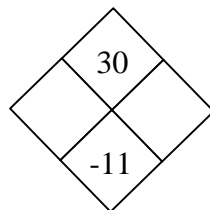
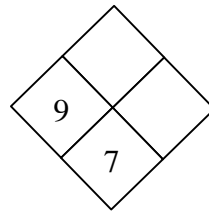
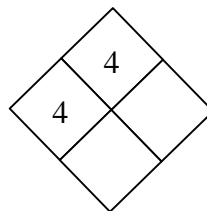
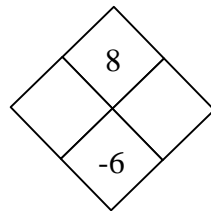
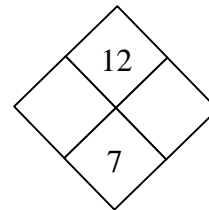
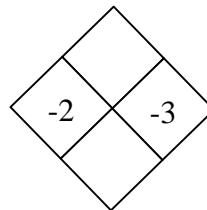
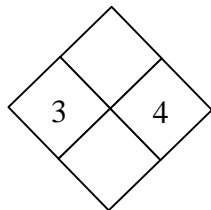
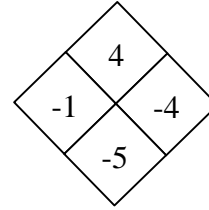
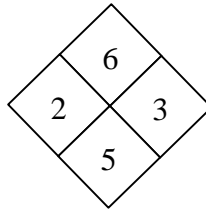
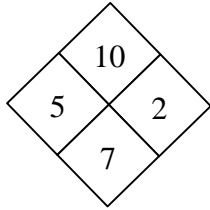
a) CD player – regular price \$40

b) Winter coat – regular price \$80

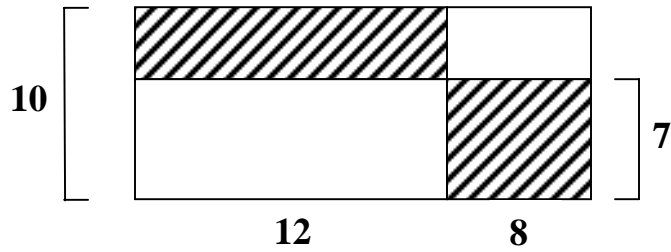
c) Dress shirt – regular price \$24

2. **DIAMOND PROBLEMS**

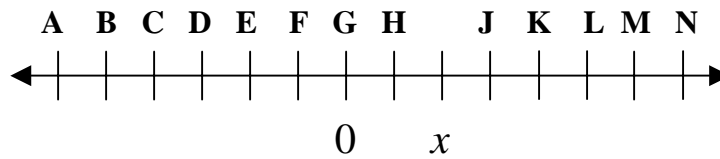
Discover a pattern in the first three problems below. Use your pattern to solve the remaining diamonds.



3. Find the area of the shaded region of this rectangle:



- 4.

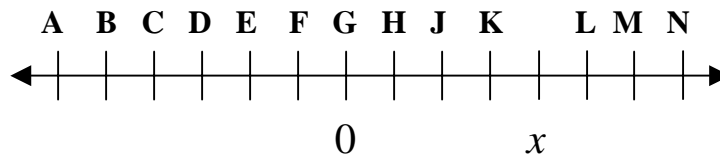


On the number line above, if  $x = 10$ , identify the following:

Which letter represents?

1. 5 \_\_\_\_\_
2. -10 \_\_\_\_\_
3. 20 \_\_\_\_\_
4.  $-2x$  \_\_\_\_\_

- 5.



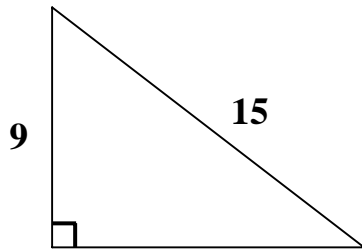
On the number line above, if  $x = 1$ , identify the following:

Which letter represents?

- a)  $-1/4$  \_\_\_\_\_
- b) .50 \_\_\_\_\_
- c) -1.5 \_\_\_\_\_
- d)  $x - 1/4$  \_\_\_\_\_

6. The Pythagorean theorem is  $a^2 + b^2 = c^2$ , where  $a$  and  $b$  are the legs of a right triangle and  $c$  is the hypotenuse.

Find the area of the triangle below:



7. If the sum of two numbers is 30, and their difference is 22, what are the two numbers?

8. The track team runs 4 miles in 25 minutes, and then they rest for 5 minutes. How long does it take the team to run 12 miles?

9. Ms. Browne's class has two lizards, Lumpy and Larry. Lumpy's total length is 12 inches and Larry's body (not counting the tail) is 6 inches long. Each of their tails is twice as long as its body.

a) What is the length of Lumpy's tail?

b) What is the combined total length of both lizards?

10. List all of the numbers between 1 and 100 that follow these rules:

Rule 1: The number is odd

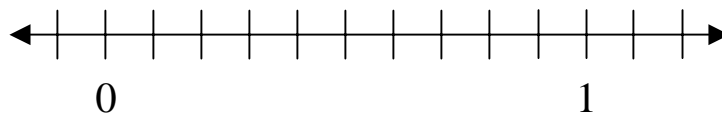
Rule 2: The sum of the digits is 8

11. A firefighter is standing on the middle rung of a ladder. She moves up 9 rungs. The smoke gets worse, so she moves back down 13 rungs. When the smoke clears, she moves up 19 rungs to the top of the ladder. How many rungs does the ladder have? Explain how you found your answer using words, numbers, and/or pictures.

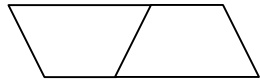
12. On the number line below, **plot the points** for the following numbers.

$$\frac{4}{5}, 0.6$$

- Plot and label each point.
- Name two different rational numbers that are greater than  $.6$  **and** less than  $\frac{4}{5}$ .  
Write one of your numbers in fractional form and write the other number in decimal form.
- Explain how you know that each of your numbers is greater than  $.6$  and less than  $\frac{4}{5}$ .



13. Marcia is making trapezoid trains with her trapezoid blocks.

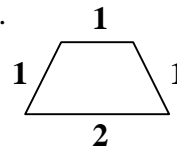


2-trapezoid train



3-trapezoid train

Three sides of a trapezoid block measure 1 unit each.  
The fourth side measures 2 units.



What is the perimeter of a trapezoid train made up of 5 trapezoid blocks? 10? 32?  
*Hint: can you find a pattern and then create a formula?*

14. **DIRECTIONS:** *Respond in detail. Show your process and provide an explanation as directed in the question. Your score will be based on the accuracy and completeness of your process or explanation.*



**USE  
PACE!!**

At 9:00 a.m. on the super sale day at Clothing City, Amy saw the coat she wants priced at \$65. Amy has only \$46. Every hour the price on the coats will be reduced 10% from the previous hour's price.

At what time will Amy be able to buy the coat for \$46 or less, provided that the coat is still available?