

Name: _____
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Class: _____

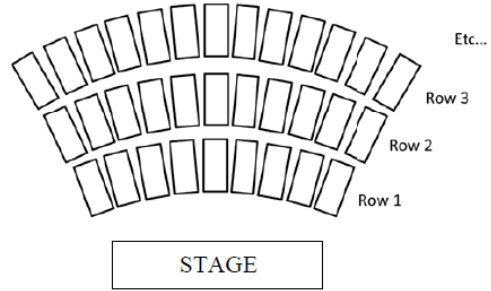
Algebra
Unit 1
HW 1-7

- Answer the following rate questions based on either multiplication or division. Think carefully about which is required (they will be mixed up). Show the calculation and units that you use.
 - A child bought 4 bags of rubber bands to make into bracelets. If there are 80 rubber bands per bag, how many total rubber bands did he buy?
 - Kirk has 42 pieces of candy to divide evenly between his three children. If he puts the pieces into three boxes, how many pieces of candy are there per box?
 - A car traveling on the Taconic parkway travels 84 miles in two hours. What is the car's speed (a special type of rate) in miles per hour?
 - A car salesperson earns a \$500 fee per car she sells. If she sells 4 cars in one day, how much money does she earn in fees?
- If there are 4 quarts in a gallon, and 2 pints in a quart, and 2 cups in a pint, then how many cups are in a gallon? Show your calculation or explain how you arrive at your answer.
- A person driving along the road moves at a rate of 56 miles per hour driven. How far does the person drive in 1.5 hours? Show the calculation you use in your answer and give your answer proper units.
- Mr. Weiler has 32 students in his class. He wishes to place them into 8 groups of equal size. Which of the following represents the number of students per group?
 - 256
 - 2
 - 6
 - 4

5. Seating in theaters or auditoriums is often arranged such that rows closer to the stage have less seats than rows farther away. An **example** of a seating chart for a theater is shown below.

(a) Assuming this pattern continues, fill out the following table:

Row, r	Number of Seats, S
1	9
2	11
3	
4	
5	
6	
7	



(b) Jonathan tries to mathematically model the number of seats in a given row. He tries to come up with an equation for the number of seats and determines:

$$S = 7r + 2, \text{ where } S \text{ is the number of seats in row, } r$$

Does this equation work for $r=1$? What about for $r=2$ and $r=3$? Show calculations that support your yes/no answers.

(c) The correct equation is: $S = 2r + 7$. Verify this equation matches your table for $r=1$, $r=2$, and $r=3$.

(d) According to the formula from part (c), how many seats are in the 15th row? Show your calculation.

(e) Finally, let's say we know that a certain row has 91 seats in it. Which row is it? Try to set up and solve a simple equation that gives you this answer.