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Unit 3, Lesson 7: Equivalent Ratios Have the Same Unit Rates

1. A car travels 55 miles per hour for 2 hours. Complete the table.

time (hours)	distance (miles)	miles per hour
1 $\times 55 =$	55	55
$\frac{1}{2} \times 55 =$	27.5	55
$1\frac{1}{2} \times 55 =$	82.5	55
$2 \times 55 =$	110	55

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2. The table shows the amounts of onions and tomatoes in different-sized batches of a salsa recipe.

Elena notices that if she takes the number in the tomatoes column and divides it by the corresponding number in the onions column, she always gets the same result.

onions (ounces)	tomatoes (ounces)
2	16
4	32
6	48

What is the meaning of the number that Elena has calculated?

8 means she needs 8 ounces of tomatoes for every one ounce onion or 8x as many tomatoes as onions

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3. A restaurant is offering 2 specials: 10 burritos for \$12, or 6 burritos for \$7.50. Noah needs 60 burritos for his party. Should he buy 6 orders of the 10-burrito special or 10 orders of the 6-burrito special?

Explain your reasoning.

$\frac{16}{10} \times \$12 \Rightarrow$ each \$1.20 $\frac{16}{6} \times \$7.50$ each 1.25
 $\$72 \leftarrow \frac{16}{10}$ better deal $\frac{16}{6} \times 10 = \75

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4. Complete the table so that the cost per banana remains the same.

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number of bananas	cost in dollars	unit price (dollars per banana)
4	2.00	0.50
6	3.00	0.50
7	3.50	0.50
10	5.00	0.50
20	10.00	0.50
33	16.50	0.50

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$\approx 16.50 \div .50$

5. Two planes travel at a constant speed. Plane A travels 2,800 miles in 5 hours. Plane B travels 3,885 miles in 7 hours. Which plane is faster? Explain your reasoning.

A $\frac{2800 \text{ mi}}{5 \text{ hr}}$ divide \rightarrow $\frac{560 \text{ mi}}{1 \text{ hr}}$
 B $\frac{3885 \text{ mi}}{7 \text{ hr}}$ divide \rightarrow $\frac{555 \text{ mi}}{1 \text{ hr}}$

$\frac{560 \text{ mi}}{1 \text{ hr}} > \frac{555 \text{ mi}}{1 \text{ hr}}$

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(from Unit 3, Lesson 5)

Challenge:

6. A car has 15 gallons of gas in its tank. The car travels 35 miles per gallon of gas. It uses $\frac{1}{35}$ of a gallon of gas to go 1 mile.

a. How far can the car travel with 15 gallons?

Show your reasoning. See table.

$35 \times 15 = 525 \text{ miles}$

b. How much gas does the car use to go 100 miles? Show your reasoning.

$\frac{100}{35} = 2 \frac{30}{35}$
 $= 2 \frac{6}{7}$

(from Unit 3, Lesson 6)

+ 2 possible

mi	g
35	1
1	$\frac{1}{35}$
525	15

 $\frac{100}{35}$

Total 15