Agenda:

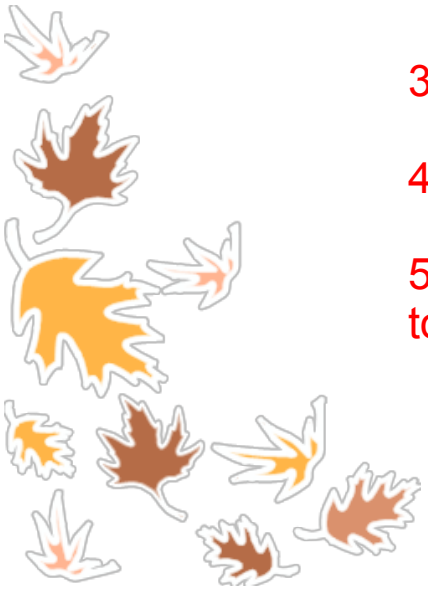
1) Bell Ringer: p. 98

2) Go over Lesson 13 (1-4)

3) Lesson 14: Multi Step Ratio Problems

4) Homework: Lesson 14 (1-7)

5) PS #4 due next week, project due tomorrow



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Problem Set

1. You are getting ready for a family vacation. You decide to download as many movies as possible before leaving for the road trip. If each movie takes $1\frac{2}{5}$ hours to download and you downloaded for 5 ¼ hours, how many movies did you download?

2. The area of a blackboard is $1\frac{1}{3}$ square yards. A poster's area is $\frac{8}{9}$ square yards. Find a unit rate and explain, in words, what the unit rate means in the context of this problem. Is there more than one unit rate that can be calculated? How do you know?

3. A toy remote control jeep is 12 ½ inches wide while an actual jeep is pictured to be 18 ¾ feet wide. What is the value of the ratio of the width of the remote control jeep to width of the actual jeep?

$12\frac{1}{2}$ in to $18\frac{3}{4}$ ft

12

$1\frac{1}{24}$ ft : $18\frac{3}{4}$ ft

1/18

Example 2

When a business buys a fast food franchise, it is buying the recipes used at every restaurant with the same name. For example, all Pizzeria Specialty House Restaurants have different owners but they must all use the same recipes for their pizza, sauce, bread, etc. You are now working at your local Pizzeria Specialty House restaurant and listed below are the amounts of meat used on one meat-lovers pizza.

$\frac{6}{24} = \frac{1}{4}$ cup of sausage

$\frac{8}{24} = \frac{1}{3}$ cup of pepperoni

$\frac{4}{24} = \frac{1}{6}$ cup of bacon

$\frac{3}{24} = \frac{1}{8}$ cup of ham

$\frac{3}{24} = \frac{1}{8}$ cup of beef

Add fractions - common denominator

$\frac{6+8+4+3+3}{24} = \frac{24}{24} = 1$

What is the total amount of toppings used on a meat-lovers pizza? 1 cups

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The meat must be mixed using this ratio to ensure that customers will receive the same great tasting meat-lovers pizza from every Pizzeria Specialty House Restaurant nationwide. The table below shows 3 different orders for meat-lovers pizza on Superbowl Sunday. Using the amounts and total for one pizza given above, fill in every row and column of the table so the mixture tastes the same.

	Order 1	Order 2	Order 3
Sausage (cups)	1		
Pepperoni (cups)			3
Bacon (cups)		1	
Ham (cups)	$\frac{1}{2}$		
Beef (cups)			$1\frac{1}{8}$
TOTAL (cups)			

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Exercises

1. The table below shows 6 different-sized pans of the same recipe for macaroni and cheese. If the recipe relating the ratio of ingredients stays the same, how might it be altered to account for the different sized pans?

Noodles (cups)	Cheese (cups)	Pan Size (number of cups)
		5
3	$\frac{3}{4}$	
	$\frac{1}{4}$	
$\frac{2}{3}$		
$5\frac{1}{3}$		
		$5\frac{5}{8}$

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Lesson Summary:

To find missing quantities in a ratio table where a total is given, determine the unit rate from the ratio of two given quantities and use it to find the missing quantities in each equivalent ratio.

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Problem Set

1. Students in 6 classes, displayed below, ate the same ratio of cheese pizza slices to pepperoni pizza slices. Complete the following table, which represents the number of slices of pizza students in each class ate.

Slices of Cheese Pizza	Slices of Pepperoni Pizza	Total Pizza
2	5	7
6	15	21
8	20	28
	$13\frac{3}{4}$	
$3\frac{1}{3}$		
	$1\frac{1}{2}$	$2\frac{1}{10}$

① $15 \div 6 = 2.5$

$21 \div 15 = 1.4$

$28 \div 20 = 1.4$

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2. To make green paint, students mixed yellow paint with blue paint. The table below shows how many yellow and blue drops from a dropper several students used to make the same shade of green paint.

   a. Complete the table.

Yellow (Y) (ml)	Blue (B) (ml)	Total
3 ½	5 ¼	$8\frac{3}{4}$
2	3 $\div 1\frac{2}{3}$	5
	6 ¾	
6 ½		

$8\frac{3}{4} \div 5\frac{1}{4} =$

$\frac{35}{4} \div \frac{21}{4}$

$\frac{35}{4} \times \frac{4}{21} 3 = \frac{5}{3} = 1\frac{2}{3}$

   b. Write an equation to represent the relationship between the amount of yellow paint and blue paint.

3.

a. Complete the following table

Distance Ran (miles)	Distance Biked (miles)	Total Amount of Exercise (miles)
		6
$3\frac{1}{2}$	7	
	$5\frac{1}{2}$	
$2\frac{1}{8}$		
	$3\frac{1}{3}$	

b. What is the relationship between distances biked and distances ran?

$y = 2x$

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4. The following table shows the number of cups of milk and flour that are needed to make biscuits. Complete the table.

Milk (cups)	Flour (cups)	Total (cups)
7.5		
	10.5	
12.5	15	
		11

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Lesson 14: Multistep Ratio Problems

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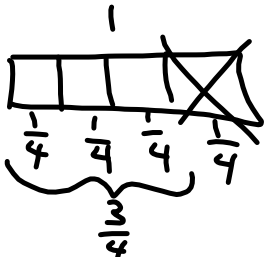
Classwork

Example 1: Bargains

off = Subtract

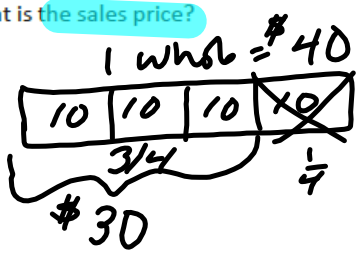
A retail clothing store advertises the following sale: Shirts are $\frac{1}{2}$ off the original price; pants are $\frac{1}{3}$ off the original price, and shoes are $\frac{1}{4}$ off the original price (called the discount rate).

a. If a pair of shoes cost $40 and is advertised at $\frac{1}{4}$ off the original price, what is the sales price?



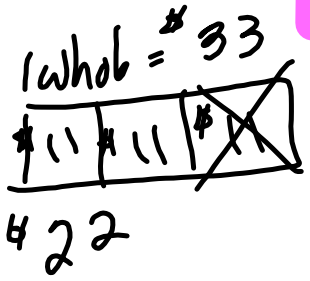
rate = $\frac{3}{4}$

$\frac{10\cancel{40}}{1} \times \frac{3}{\cancel{4}_1} = \$30$



b. At Peter's Pants Palace a pair of pants that usually sell for $33.00. If Peter advertises that the store is having $\frac{1}{3}$ off sale, what is the sale price of Peter's pants?

$\frac{11\cancel{33}}{1} \times \frac{2}{\cancel{3}_1} = \$22$



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Example 2: Big Al's Used Cars

of = multiply

A used car sales person receives a commission of $\frac{1}{12}$ of the sales price of the car on each car he sells. What would the sales commission be on a car that sold for $21,999?

rate = $\frac{1}{12}$

$21,999 \times \frac{1}{12} = \$1833.25$

orig	commission
21,999	$1833.25

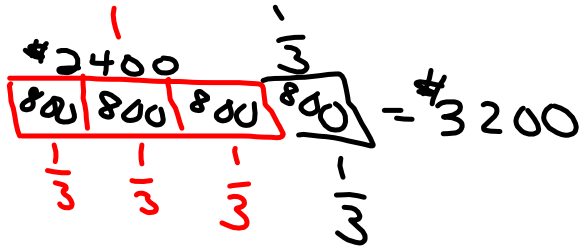
× $\frac{1}{12}$

Example 3: Tax Time

As part of a marketing ploy, some businesses mark up their prices before they advertise a sales event. Some companies use this practice as a way to entice customers into the store without sacrificing their profits.

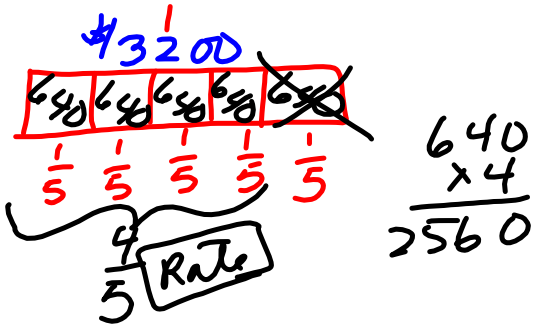
A furniture store wants to host a sales event to improve their profit margin and to reduce their tax liability before their inventory is taxed at the end of the year.

How much profit will be business make on the sale of a couch that is marked-up by $\frac{1}{3}$ and then sold at a $\frac{1}{5}$ off discount if the original price is $2400?



$\text{Rate} = \frac{4}{3}$

$\frac{800}{2400} \times \frac{4}{3} = 3200$ New price



$640 \times 4 = 2560$

$3200 \times \frac{4}{5} = \$2560$

3200
−640 Discount
2560 sale price

Example 4: Born to Ride #6

A motorcycle dealer paid a certain price for a motorcycle and marked it up by $\frac{1}{5}$ of the price he paid. Later he sold it for $14,000 what is the original price?

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Lesson Summary:

- Discount price = original price − rate × original price OR (1 - rate) × original price
- Commission = rate × total sales amount
- Markup price = original price + rate × original price OR (1 + rate) × original price

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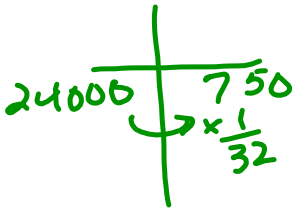
Problem Set



1. What is $\frac{1}{32}$ commission of sales totaling $24,000?

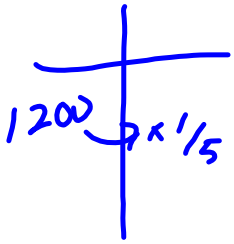
2. DeMarkus says that a store overcharged him on the price of the video game he bought. He thought that the price was marked $\frac{1}{4}$ **of** the original price, but it was really $\frac{1}{4}$ **off** the original price. He misread the advertisement. If the original price of the game was $48, then what was the difference between the price that DeMarkus thought he should pay and the price that the store charged him?

of $48 \times \frac{1}{4} = 12$ off $48 - 12 = 36$

Difference: $36 - 12 = 24$

3. What is the cost of a $1200 washing machine that was on sale for a $\frac{1}{5}$ discount?

$\frac{1200}{1} \times \frac{1}{5} = \frac{1200}{5} = 240$



$1200 - 240 = 960$

4. If a store advertised a sale that gave customers a $\frac{1}{4}$ discount, what is the fraction part of the original price that the customer will pay?

5. Mark bought an electronic tablet on sale for $\frac{1}{4}$ off its original price of $825.00. He also wanted to use a coupon for a $\frac{1}{5}$ off the sales price. Before taxes, how much did Mark pay for the tablet?

6. A car dealer paid a certain price for a car and marked it up by $\frac{7}{5}$ of the price he paid. Later he sold it for $24,000 what is the original price?

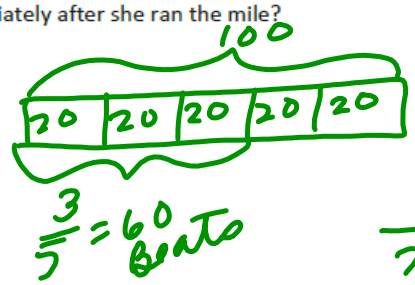
$24000 \div \frac{12}{5} = 10,000$

$\frac{5}{5} + \frac{7}{5} = \frac{12}{5}$

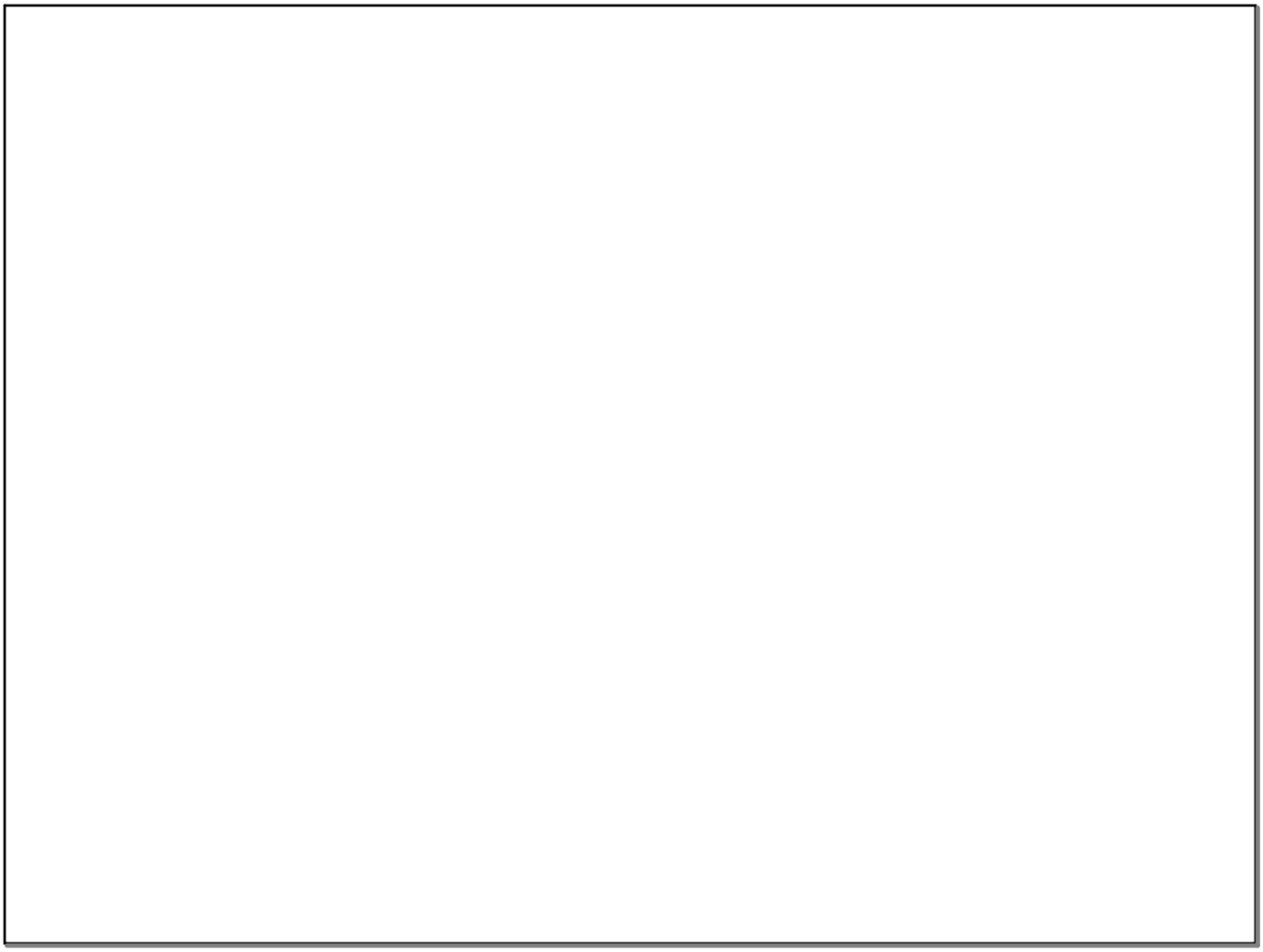
orig	sp.
?	24000

7. Joanna ran a mile in physical education class. After resting for one hour, her heart rate was 60 beats per minute. If her heart rate decreased by $\frac{2}{5}$, what was her heart rate immediately after she ran the mile?

$1 - \frac{2}{5} = \frac{3}{5}$



$\frac{3}{5} = 60$ beats



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