7th Grade
Nov 9, 2020

Today we will:
-watch video notes
-do examples
-begin HW

HOMEWORK:

WS Page 186 and 191

ALEKS-5 topics and 60 minutes due by 11:59pm Monday night

5-1 RATIOS and 5-2 UNIT RATES

A ratio is:

a comparison of two

quantities by division

A rate is:

a ratio of two quantities of

different units

Ratio Examples: pg 185

1. *12 boys to 16 girls*

Write as a fraction and simplify:

$$\frac{12}{16} \div \frac{4}{4} = \frac{3}{4} \text{ or } 3:4$$

What does this mean?

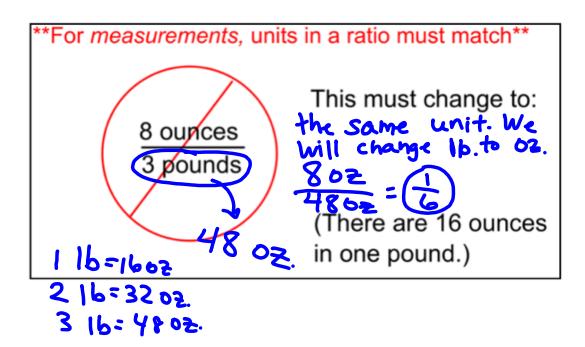There are ___3 boys___ for every ___4 girls___.

2. *36 DVDs out of 84 DVDs*

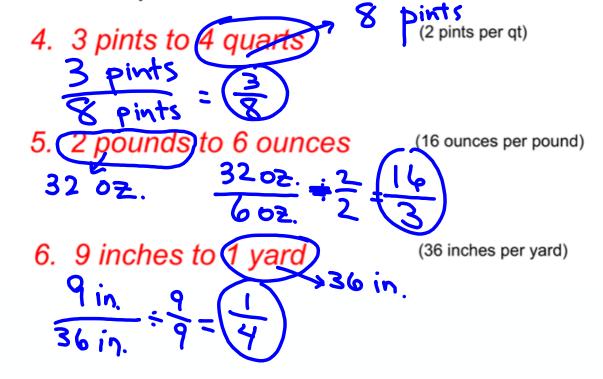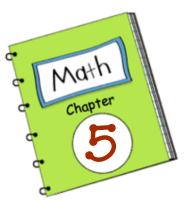$$\frac{36}{84} \div \frac{12}{12} = \frac{3}{7}$$

3. *50 tiles to 25 tiles*

$$\frac{50}{25} \div \frac{25}{25} = \frac{2}{1} \text{ or } 2$$

Remember, a UNIT RATE has a denominator of __one__.

To find unit rate, divide the __numerator__ by the __denominator__.

Set up the fraction so that the __denominator__ is the unit that is "per" or "each"

_____ or each or every

For example,
6 items cost $12. How much (per) item?

__Amount of money__ goes in the numerator
and
__# of items__ goes in the denominator.

The unit rate is $\div\dfrac{\$12}{6\ items} = \dfrac{\$2}{1\ item}$.

_____

60 books are carried by 12 students.
How many books for (each) student?

__Books__ goes in the numerator
and
__Students__ goes in the denominator.

The unit rate is $\div\dfrac{60\ books}{12\ students} = \dfrac{5\ books}{1\ student}$

For *measurements*, units in a ratio must match

$$\frac{8 \text{ ounces}}{3 \text{ pounds}}$$

→ 48 oz.

1 lb = 16 oz
2 lb = 32 oz.
3 lb = 48 oz.

This must change to:
the same unit. We will change lb. to oz.

$$\frac{8\,oz}{48\,oz} = \frac{1}{6}$$

(There are 16 ounces in one pound.)

Examples with measurement units:

4. **3 pints to 4 quarts** → 8 pints (2 pints per qt)

$$\frac{3 \text{ pints}}{8 \text{ pints}} = \frac{3}{8}$$

5. **2 pounds to 6 ounces**   (16 ounces per pound)

32 oz.

$$\frac{32\,oz.}{6\,oz.} \div \frac{2}{2} = \frac{16}{3}$$

6. **9 inches to 1 yard**   (36 inches per yard)

→ 36 in.

$$\frac{9\,in.}{36\,in.} \div \frac{9}{9} = \frac{1}{4}$$

Math Chapter **5**

TITLE:
Ratios and Proportions

Date	Lesson	Topic/Assignment
11-9	1&2	Ratios and Unit Rates Video Notes
11-9	1&2	Page 186 and 191 from Text

Independent Practice

eHelp

Express each rate as a unit rate. Round to the nearest tenth or to the nearest cent, if necessary. (Example 1)

9 156 students in 6 classes

10. 424 Calories in 3 servings

11. 147.5 miles in 2.5 hours

12. $29.95 for 4 DVDs

may use a calculator :)

13. $231 for 3 game tickets

14. 5 tablespoons in 4 quarts

15. $97.50 for 15 pizzas

16. 400 meters in 58 seconds

17. 352 miles on 16 gallons

18. $60 for 8 hours of work

19. Financial Literacy The Party Planner sells 10 paper plates for $2.50. Use the table to determine which company sells paper plates for the same price per plate. Explain. (Example 2)

20. STEM Building A has 7500 square feet of office space for 320 employees. Building B has 9500 square feet of office space for 370 employees. Which building has more square feet of space per employee? Explain. (Example 2)

Store	Number of Plates	Price
Party Time	15	$3.75
Good Times	20	$6.00
Birthday, Inc.	25	$7.50

9. $156 \div 6 =$

10. $\div \dfrac{424}{3} =$

Independent Practice

eHelp

Express each ratio as a fraction in simplest form. (Example 1)

10. 9 out of 15 pets

11. 20 wins out of 36 games

12. 4 players to 52 cards

13. 45 out of 60 days

14. 16 pens to 10 pencils

15. 96 people to 3 buses

16. On a full-sized piano, there are 36 black keys and 52 white keys. Express the ratio of black keys to white keys as a fraction in simplest form. Explain its meaning. (Example 2)

17. In a restaurant, 72 out of 108 tables are booths. Express the ratio of tables that are booths to the total number of tables as a fraction in simplest form. Explain its meaning. (Example 2)

Express each ratio as a fraction in simplest form. (Example 3)

18. 10 yards to 10 feet

19 4 ounces to 2 pounds

20. 18 quarts to 4 gallons

21. 6 feet to 14 inches

22. A department store conducted a study to determine what age groups shop in its store.

a. Express the ratio of people ages 0–17 to people ages 18–30 as a fraction in simplest form.

b. Express the ratio of people 30 or under to people over the age of 30 as a fraction in simplest form.

c. Express the ratio of people ages 18–30 to the total number of people as a fraction in simplest form.

Age Group	Number
0–17	25
18–30	75
31–45	54
46+	26