

If you were absent from math class on Friday -

Get your textbook and tear out pages 185 - 230

Place the pages in your 3-ring binder

Put your textbook back

We are going to go over a lesson then you will start/finish your quiz from Friday. If you do not finish it today, you will have some time tomorrow.

Module 6 Quiz corrections are due now. Staple your corrections to the front of your quiz and place in your period's bin by the door.

Nov 2-12:07 PM



60 minutes a week

10 points formative

UN: Lunch/student ID

PW: Lunch/student ID

[Forgot your password?](#)

Optional: Did your teacher give you a Site Code? If so, please type it in the box below. Site Codes are not required for teachers.

Site Code

1201590

 Sign In

Nov 2-5:00 PM

LESSON **7.3** Converting Within Measurement Systems

Use **ratio** reasoning to convert measurement units

Fraction

Nov 2-12:10 PM

© MARK ANDERSON

WWW.ANDERTOONS.COM



"What about Instagram?"

Nov 2-1:32 PM

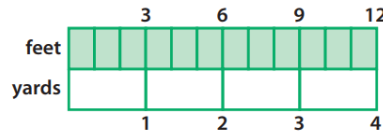
Using a Model to Convert Units

pg. 185

The two most common systems of measurement are the customary system and the metric system. You can use a model to convert from one unit to another within the same measurement system.

STEP 1 Use the model to complete each statement below.

- 1 yard = 3 feet
- 2 yards = 6 feet
- 3 yards = 9 feet
- 4 yards = 12 feet



STEP 2 Rewrite your answers as ratios.

$$\frac{6 \text{ feet}}{2 \text{ yards}} = \frac{3 \text{ feet}}{1 \text{ yard}}$$

$$\frac{9 \text{ feet}}{3 \text{ yards}} = \frac{3 \text{ feet}}{1 \text{ yard}}$$

$$\frac{12 \text{ feet}}{4 \text{ yards}} = \frac{3 \text{ feet}}{1 \text{ yard}}$$

Since 1 yard = 3 feet, the ratio of feet to yards in any measurement is always $\frac{3}{1}$. This means any ratio forming a proportion with $\frac{3}{1}$ can represent a ratio of feet to yards.

$$\frac{3}{1} = \frac{12}{4} \Rightarrow 12 \text{ feet} = 4 \text{ yards} \quad \frac{3}{1} = \frac{54}{18} \Rightarrow 54 \text{ feet} = 18 \text{ yards}$$

Reflect

- Communicate Mathematical Ideas** How could you draw a model to show the relationship between feet and inches?

Sample answer: Draw a bar representing 1, 2, 3, and 4 feet. Above it, draw bars with each foot divided into 12 equal pieces, and label the pieces 12, 24, 36, and 48.

Nov 2-12:11 PM

pg. 186

Converting Units Using Proportions and Unit Rates

You can use ratios and proportions to convert both customary and metric units. Use the table below to convert from one unit to another within the same measurement system.

| Customary Measurements | | |
|---|----------------------------------|--|
| Length | Weight | Capacity |
| 1 ft = 12 in. 1 yd = 36 in. 1 yd = 3 ft 1 mi = 5,280 ft 1 mi = 1,760 yd | 1 lb = 16 oz 1 T = 2,000 lb | 1 c = 8 fl oz 1 pt = 2 c 1 qt = 2 pt 1 qt = 4 c 1 gal = 4 qt |
| Metric Measurements | | |
| Length | Mass | Capacity |
| 1 km = 1,000 m 1 m = 100 cm 1 cm = 10 mm | 1 kg = 1,000 g 1 g = 1,000 mg | 1 L = 1,000 mL |

Nov 2-12:16 PM

What is the weight of a 3-pound human brain in ounces?

pg.186

Use a proportion to convert 3 pounds to ounces.

Use $\frac{16 \text{ ounces}}{1 \text{ pound}}$ to convert pounds to ounces.



| | Act | Conv. |
|----|-----|-------|
| lb | 3 | 1 |
| oz | ? | 16 |

Handwritten notes: A blue arrow labeled 'x3' points from the '1' in the top-right cell to the '3' in the top-left cell. Another blue arrow labeled 'x3' points from the '16' in the bottom-right cell to the '?' in the bottom-left cell. The value '48 oz' is circled in blue below the table.

$$\frac{16 \text{ oz}}{1 \text{ lb}} = \frac{48 \text{ oz}}{3 \text{ lb}}$$

Nov 2-1:26 PM

- B** A moderate amount of daily sodium consumption is 2,000 milligrams. What is this mass in grams?

pg.186

Use a proportion to convert 2,000 milligrams to grams.

Use $\frac{1,000 \text{ mg}}{1 \text{ g}}$ to convert milligrams to grams.

| | | Conv. |
|----|------|-------|
| mg | 2000 | 1000 |
| g | ? | 1 |

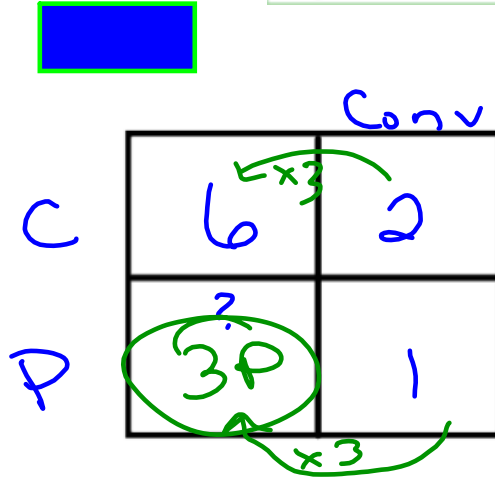
Handwritten notes: A red arrow labeled 'x2' points from the '1000' in the top-right cell to the '2000' in the top-left cell. Another red arrow labeled 'x2' points from the '1' in the bottom-right cell to the '?' in the bottom-left cell. The value '2g' is circled in red below the table.

Nov 2-1:27 PM

Ms. Burns needs 6 cups of cream to make ice cream. Cream is sold in pints. How many pints of cream does she need to make the ice cream? **3 pints**

not in your book

| Capacity | |
|----------|-----------|
| 1 c | = 8 fl oz |
| 1 pt | = 2 c |
| 1 qt | = 2 pt |
| 1 qt | = 4 c |
| 1 gal | = 4 qt |



Nov 2-1:28 PM

Converting Units by Using Conversion Factors

pg.187

Another way to convert measurements is by using a conversion factor. A **conversion factor** is a ratio comparing two equivalent measurements.



Key Idea not in your book

Conversion Factor

A **conversion factor** is a rate that equals 1.

Relationship
Example 1 foot = 12 inches

Conversion Factors

$$\frac{1 \text{ ft}}{12 \text{ in}} \text{ and } \frac{12 \text{ in}}{1 \text{ ft}}$$



$$\frac{1 \text{ ft}}{12 \text{ in}} \text{ and } \frac{12 \text{ in}}{1 \text{ ft}}$$

Nov 2-1:50 PM

Elena wants to buy ^{given} 2 gallons of milk but can only find quart containers for sale. How many quarts does she need? pg.187

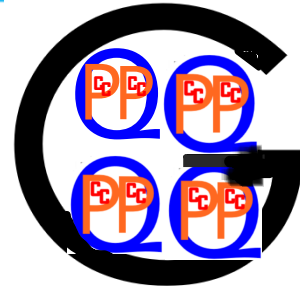
You are converting to quarts from gallons.

STEP 1 Find the conversion factor.

Write 4 quarts = 1 gallon as a ratio: $\frac{4 \text{ quarts}}{1 \text{ gallon}}$

STEP 2 Multiply the given measurement by the conversion factor.

| Given | Conversion | |
|-----------------------------------|--|-------------------------|
| Measurement | Factor | |
| $\frac{2 \cancel{\text{gal}}}{1}$ | $\frac{4 \text{ qt}}{1 \cancel{\text{gal}}}$ | $\times = 8 \text{ qt}$ |



Nov 2-1:52 PM

3. An oak tree is planted when it is 250 centimeters tall. What is this height in meters? pg.188

| Length |
|----------------|
| 1 km = 1,000 m |
| 1 m = 100 cm |
| 1 cm = 10 mm |

| Given | Conversion | |
|------------------------------------|--|------------|
| Measurement | Factor | |
| $\frac{250 \cancel{\text{cm}}}{1}$ | $\frac{1 \text{ m}}{100 \cancel{\text{cm}}}$ | $\times =$ |

$$\frac{250 \cancel{\text{m}}}{100} = 2.5 \text{ m}$$

Nov 2-2:17 PM

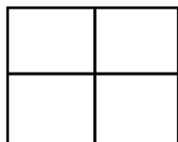
Homework

Textbook page 188

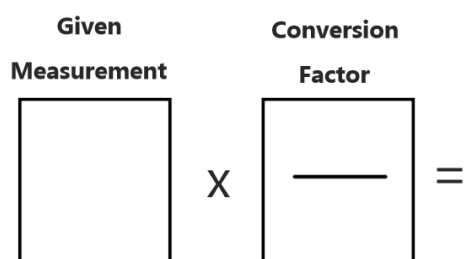
1 - 10 (10 Problems)

Use ratios and proportions to solve. (Example 1)

3 - 6

**Use a conversion factor to solve.** (Example 2)

7 - 10



Nov 2-2:28 PM