

Daily Lesson Plans - Algebra 1 - Lesson 2.3

Thurs., September 17

Lesson Objectives & Standards Addressed

- find a conversion factor to change measurements from centimeters to inches
- use dimensional analysis to do conversions involving several steps

Proportional Reasoning and Variation

1. Proportions
2. Capture-Recapture
3. Proportions and Measurement Systems
4. Direct Variation
5. Inverse Variation
6. Variation with a Bicycle
7. Evaluating Expressions
8. Undoing Operations

Numbers, Number Sense and Operations

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|---|---|
| E. Compare, order and determine equivalent forms of real numbers. | 2- Compare, order and determine equivalent forms for rational and irrational numbers. |
| G. Estimate, compute and solve problems involving real numbers, including ratio, proportion and percent, and explain solutions. | 4- Demonstrate fluency in computations using real numbers. |

Measurement

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| D. Use proportional reasoning and apply indirect measurement techniques, including right triangle trigonometry and properties of similar triangles, to solve problems involving measurements and rates. | 1- Convert rates within the same measurement system; e.g., miles per hour to feet per second; kilometer per hour to meters per second. |
| | 2- Use unit analysis to check computations involving measurement. |

Daily Agenda



1. Check and go over Homework p. 111 #1-3, 5-6, 8-12
2. Go over Test Chapter 1
3. Start homework if time

Homework Assigned

Worksheet 2.3

on next page

Evaluation

Quiz 2.1-2.3 Friday

Lesson 2.3 • Proportions and Measurement Systems

Name _____ Period _____ Date _____

1. Find the value of n in each proportion.

a. $\frac{2.54 \text{ centimeters}}{1 \text{ inch}} = \frac{n \text{ centimeters}}{12 \text{ inches}}$

b. $\frac{1 \text{ kilometer}}{0.621 \text{ mile}} = \frac{n \text{ kilometers}}{200 \text{ miles}}$

c. $\frac{1 \text{ yard}}{0.914 \text{ meter}} = \frac{140 \text{ yards}}{n \text{ meters}}$

d. $\frac{0.305 \text{ meter}}{1 \text{ foot}} = \frac{200 \text{ meters}}{n \text{ feet}}$

2. Use the conversion factors in the table to make each conversion.

a. 10 inches to centimeters

b. 355.6 centimeters to inches

c. 7392 feet to miles

d. 1 mile to inches

e. 4 miles to meters

f. 100 yards to meters

1 inch = 2.54 centimeters
1 foot \approx 0.305 meter
1 foot = 12 inches
5,280 feet = 1 mile
1 yard = 3 feet

3. Write a proportion and answer each question below using the conversion factor 1 kilogram \approx 2.2 pounds.

a. \$20 buys 2.5 kilograms of steak. How many pounds of steak will \$20 buy?

b. Mr. Ruan weighs 170 pounds. What is his mass in kilograms?

c. Which is heavier, 51 kilograms or 110 pounds?

d. Professional middleweight boxers have a weight of at most 160 pounds, which is a mass of at most _____ kilograms.

4. Olympic track and field records are kept in metric units. Use the conversion factors for Exercises 2 and 3 to answer each question below. (*Encyclopedia Britannica Almanac 2005*, pp. 919–923.)
- a. In 2004, Veronica Campbell of Jamaica won the 200-meter run in 22.05 seconds. Her average speed was _____ meters per second, or _____ feet per second. Round answers to the nearest hundredth.
 - b. In 2004, Christian Olsson of Sweden won the triple jump with a distance of 17.79 meters. How many inches was his jump? Give the answer to the nearest inch.
 - c. In 2004, Yuriy Bilonog of Ukraine won the 16-pound shot put with a distance of 21.16 meters. How far is this in yards? What was the mass of the shot in kilograms? Round answers to the nearest hundredth.
 - d. In 2004, Huina Xing of China won the women's 10-kilometer run in a time of 30 minutes 24.36 seconds. How far, to the nearest hundredth, did she run in miles? Note: 1 kilometer = 1000 meters.
 - e. In 2004, Stefano Baldini of Italy won the marathon (26 miles 385 yards) in 2 hours 10 minutes 55.0 seconds. How far is the marathon in meters? What was his average speed in meters per minute? Round answers to the nearest tenth.