Units and Unit Analysis Worksheet

Algebra 1 · Common Core HSN-Q.A.1

> Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

Practice

Builds the skill step by step.

1. A car travels 60 miles per hour for 3 hours. How far does it go?

2. Which is a unit of speed?

   A. hours per gallon

   B. pounds

   C. square miles

   D. miles per hour

3. Ana earns 12 dollars per hour. How much does she earn in 5 hours?

4. How many minutes are in 2 hours?

5. A room is 12 feet by 10 feet. In what unit is its area?

   A. feet per second

   B. cubic feet

   C. square feet

   D. feet

6. A block has a mass of 40 grams and a volume of 8 cubic centimeters. What is its density in grams per cubic centimeter?

7. A graph's y-axis runs from 0 to 100 with a tick mark every 10. How many equal intervals are there?

8. A train goes 90 kilometers in 1.5 hours. What is its average speed in kilometers per hour?

9. In d = rt, r is in miles per hour and t is in hours. What unit is d in?

   A. miles

   B. hours

   C. miles per hour

   D. hours per mile

10. Convert 3 feet per second to feet per minute.

ALBERT

Name _____ Date _____

Units and Unit Analysis Worksheet

Algebra 1 · Common Core HSN-Q.A.1

On Level

Grade-level practice.

1. Convert 60 miles per hour to feet per second. (1 mile = 5,280 feet.)

2. A pump moves 15 gallons per minute. How many hours does it take to pump 1,800 gallons?

3. One gallon of paint covers 400 square feet. A wall is 1,000 square feet and needs 2 coats. How many gallons are needed?

4. A 12-ounce box costs 3.60 dollars. What is the price per ounce, in dollars?

5. Students' heights range from 150 cm to 190 cm. Which y-axis scale shows the data best?

   A. start at 0 and go up by 1s

   B. start at 140 and go up by 10s

   C. start at 190 and go down

   D. start at 0 and go up by 100s

6. Convert 2.5 meters per second to kilometers per hour.

7. A rectangle is 2 meters long and 50 centimeters wide. What is its area in square meters?

8. A car gets 30 miles per gallon. Use units to explain how to find how far it goes on 12 gallons, and find the distance.

9. A heart beats 72 times per minute. How many times does it beat in an hour?

10. A graph shows temperatures from 60°F to 80°F. Why is starting the y-axis at 0 a poor choice?

    A. 0°F is too cold.

    B. Temperatures can't be graphed.

    C. Most of the graph would be empty and the changes would look tiny.

    D. The x-axis must start at 60.

Units and Unit Analysis Worksheet

Algebra 1 · Common Core HSN-Q.A.1

Challenge

Multi-step and word problems that stretch it.

1. A car goes 32 miles per gallon, and gas costs 3.50 dollars per gallon. How much does gas cost for a 240-mile trip?

2. How many square feet are in 1 square yard?

3. Water flows into a 2-cubic-meter tank at 4 liters per minute. 1 cubic meter = 1,000 liters. How many minutes does it take to fill?

4. A runner covers 100 meters in 12.5 seconds. What is her average speed in meters per second?

5. Fertilizer is spread at 3 pounds per 1,000 square feet. A yard is 50 feet by 80 feet. How many pounds are needed?

6. 1 kilometer is about 0.62 mile. About how many miles is a 10-kilometer race?

7. Which is a unit rate?

   A. 3 dollars for 4 apples

   B. 12 pages in 3 days

   C. 90 miles in 2 hours

   D. 45 miles per 1 hour

8. How many cubic inches are in 5 cubic feet? (1 cubic foot = 1,728 cubic inches.)

9. A town has 12,000 people on 3 square miles. What is its population density?

10. A graph has miles on the y-axis and hours on the x-axis. What unit does the slope of a line on it have?

    A. miles per hour

    B. hours per mile

    C. miles

    D. hours