

Using Units to Solve Multi-Step Problems

Grade 9 – Algebra 1 math · Test · Standards: N-Q.A.1, N-Q.A.2, N-Q.A.3

Name: _____ Date: _____ Class: _____

This test has 9 questions worth 20 points in total. Use a calculator when needed, show the units in your work and write each answer with its unit. Plan on about 45 minutes.

Standards: N-Q.A.1, N-Q.A.2, N-Q.A.3 · **Level:** Grade 9 Algebra 1

Time: 45 minutes · 9 questions · Total: 20 points · Calculator: as allowed by your teacher

Question 1 Miles to feet (2 points)

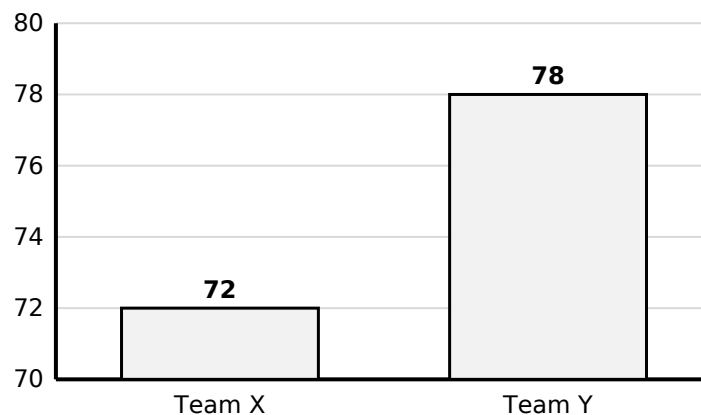
Convert 5.5 miles to feet. Show the conversion factor you use.

Question 2 Feet per second to miles per hour (2 points)

A drone flies at 22 feet per second. Find its speed in miles per hour.

Question 3 Reading a graph scale (2 points)

The graph compares the average points per game of two teams.



Average points per game (axis starts at 70).

- Measured from the bottom of the axis, how many times as tall as Team X's bar is Team Y's bar? (1 point)
- Find the true ratio of Team Y's average to Team X's average, to the nearest hundredth. (1 point)

Question 4 Earnings (2 points)

Priya earns \$15.60 per hour. She works 3 hours 45 minutes at a summer camp. How much does

she earn?

Question 5 Area of a rug (2 points)

A rug is 2.5 yards by 3 yards. Find its area in square feet.

Question 6 Draining a tank (3 points)

A tank holds 2,400 gallons. A pump drains it at 6.4 gallons per minute. (a) How many minutes does it take to empty the tank? (2 points) (b) Write the time in hours. (1 point)

Question 7 Better cereal buy (3 points)

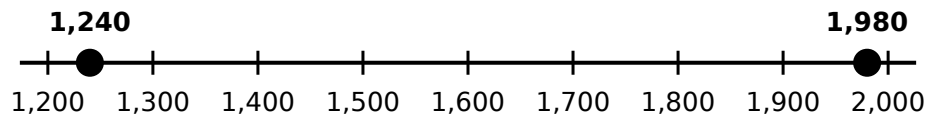
Cereal A is an 18-ounce box for \$4.14. Cereal B is a 1.25-pound box for \$4.50. (16 ounces = 1 pound.) Which is the better buy per ounce? Support your answer with both unit prices.

Question 8 Accuracy of a measurement (2 points)

A table top measures 4.6 feet by 2.3 feet, each to two significant figures. Find the area and report it with suitable accuracy.

Question 9 Choosing an axis (2 points)

A trail's elevation ranges from 1,240 feet to 1,980 feet. The axis for a graph runs from 1,200 to 2,000 with a labeled tick every 100 feet.



Axis for elevation in feet.

- How many labeled ticks does the axis have? (1 point)
- What fraction of the axis length (from 1,200 to 2,000) does the data range from 1,240 to 1,980 cover? Give a percent. (1 point)