Question ID f5b329a4

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: f5b329a4

The speed of a vehicle is increasing at a rate of 7.3 meters per second squared. What is this rate, in **miles per minute squared**, rounded to the nearest tenth? $(\text{Use } 1 \text{ mile} = 1{,}609 \text{ meters.})$

A. 0.3

B. 16.3

C. 195.8

D. 220.4

Question ID 9dd5d775

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: 9dd5d775

One side of a flat board has an area of 874 square inches. If a pressure of 19 pounds per square inch of area is exerted on this side of the board, what is the total force, in pounds, exerted on this side of the board?

Question ID 60b279a2

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: 60b279a2

For the values j and k, the ratio of j to k is 11 to 12. If j is multiplied by 17, what is k multiplied by in order to maintain the same ratio?

Question ID 701ecc09

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: 701ecc09

For a certain rectangular region, the ratio of its length to its width is 35 to 10. If the width of the rectangular region increases by 7 units, how must the length change to maintain this ratio?

A. It must decrease by 24.5 units.

B. It must increase by 24.5 units.

C. It must decrease by 7 units.

D. It must increase by 7 units.

Question ID d847e839

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: d847e839

The population density of Cedar County is 230 people per square mile. The county has a population of $85{,}100$ people. What is the area, in square miles, of Cedar County?

Question ID 49dbf54c

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: 49dbf54c

One of a planet's moons orbits the planet every 252 days. A second moon orbits the planet every 287 days. How many more days does it take the second moon to orbit the planet 29 times than it takes the first moon to orbit the planet 29 times?

Question ID 95bad03b

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: 95bad03b

A landscaper uses a hose that puts $88x$ ounces of water in a bucket in $5y$ minutes. Which expression represents the number of ounces of water the hose puts in the bucket in $9y$ minutes at this rate?

A. $\frac{9x}{440}$

B. $\frac{440x}{9}$

C. $\frac{5x}{792}$

D. $\frac{792x}{5}$

Question ID 0401c1ec

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: 0401c1ec

The density of a certain solid substance is 813 kilograms per cubic meter. A sample of this substance is in the shape of a cube, where each edge has a length of 0.60 meters. To the nearest whole number, what is the mass, in kilograms, of this sample?

A. 176

B. 488

C. $1{,}355$

D. $3{,}764$

Question ID 012d2a43

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: 012d2a43

The density of a certain type of wood is 353 kilograms per cubic meter. A sample of this type of wood is in the shape of a cube and has a mass of 345 kilograms. To the nearest hundredth of a meter, what is the length of one edge of this sample?

A. 0.98

B. 0.99

C. 1.01

D. 1.02

Question ID 10271e0b

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: 10271e0b

An object has a mass of 168 grams and a volume of 24 cubic centimeters. What is the density, in grams per cubic centimeter, of the object?

A. 7

B. 144

C. 192

D. $4{,}032$

Question ID a09944fe

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: a09944fe

A competition consisted of four different events. One participant completed the first event with an average speed of 20.300 miles per hour. What was this average speed, in yards per hour? $(1 \text{ mile} = 1{,}760 \text{ yards})$

Question ID 13f5630a

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: 13f5630a

The ratio x to y is equivalent to the ratio 9 to 5. If the value of x is 162, what is the value of y?

Question ID 11356bb9

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: 11356bb9

At a particular track meet, the ratio of coaches to athletes is 1 to 26. If there are x coaches at the track meet, which of the following expressions represents the number of athletes at the track meet?

A. $\frac{x}{26}$

B. $26x$

C. $x + 26$

D. $\frac{26}{x}$

Question ID 5db19db6

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: 5db19db6

A distance of 61 furlongs is equivalent to how many feet? $(1\ \text{furlong} = 220\ \text{yards and}\ 1\ \text{yard} = 3\ \text{feet})$

Question ID 141b4719

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: 141b4719

A triathlon is a multisport race consisting of three different legs. A triathlon participant completed the cycling leg with an average speed of 19.700 miles per hour. What was the average speed, in yards per hour, of the participant during the cycling leg? $(1 \text{ mile} = 1{,}760 \text{ yards})$

Question ID 8f3dbeec

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: 8f3dbeec

An insect moves at a speed of $\frac{3}{20}$ feet per second. What is this speed, in yards per second? $(3 \text{ feet} = 1 \text{ yard})$

A. $\frac{1}{20}$

B. $\frac{9}{20}$

C. 6

D. 20

Question ID b8043845

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: b8043845

A distance of 112 furlongs is equivalent to how many feet? $(1\ \text{furlong} = 220\ \text{yards and}\ 1\ \text{yard} = 3\ \text{feet})$

Question ID f5caf84d

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: f5caf84d

If $\frac{4a}{b} = 6.7$ and $\frac{a}{bn} = 26.8$, what is the value of n?

Question ID 0e144428

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: 0e144428

To study fluctuations in composition, samples of pumice were taken from 29 locations and cut in the shape of a cube. The length of the edge of one of these cubes is 3.000 centimeters. This cube has a density of 0.230 grams per cubic centimeter. What is the mass of this cube, in grams?

Question ID 09457f65

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: 09457f65

A distance of 354 furlongs is equivalent to how many feet? $(1 \text{ furlong} = 220 \text{ yards and } 1 \text{ yard} = 3 \text{ feet})$

A. 306

B. 402

C. $25{,}960$

D. $233{,}640$

Question ID 60ba4b19

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: 60ba4b19

To study the moisture content in a group of trees, samples from the trunk of each tree were taken from 25 trees and cut in the shape of a cube. The length of the edge of one of these cubes is 2.00 centimeters. If this cube has a mass of 2.56 grams, what is the density of this cube, in grams per cubic centimeter?

Question ID 9387e0c6

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: 9387e0c6

A certain park has an area of $11{,}863{,}808$ square yards. What is the area, in square miles, of this park?
$(1 \text{ mile} = 1{,}760 \text{ yards})$

A. 1.96

B. 3.83

C. $3{,}444.39$

D. $6{,}740.8$

Question ID 33bd877c

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: 33bd877c

The ratio 140 to m is equivalent to the ratio 4 to 28. What is the value of m?

Question ID d393a8f5

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: d393a8f5

If $\frac{x}{y} = 4$ and $\frac{24x}{ny} = 4$, what is the value of n?

Question ID 3e9e1235

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: 3e9e1235

The area of a rectangular region is increasing at a rate of 250 square feet per hour. Which of the following is closest to this rate in square meters per minute? $(\text{Use } 1 \text{ meter} = 3.28 \text{ feet.})$

A. 0.39

B. 1.27

C. 13.67

D. 23.24

Question ID 108f87f5

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: 108f87f5

A sample of oak has a density of 807 kilograms per cubic meter. The sample is in the shape of a cube, where each edge has a length of 0.90 meters. To the nearest whole number, what is the mass, in kilograms, of this sample?

A. 588

B. 726

C. 897

D. $1{,}107$

Question ID 100494f6

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: 100494f6

The total mass, in kilograms, of r identical objects is t. Which expression represents the total mass, in kilograms, of $146r$ of these objects?

A. $146 - t$

B. $146 + t$

C. $\frac{t}{146}$

D. $146t$

Question ID 6998cbf2

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: 6998cbf2

A certain town has an area of 4.36 square miles. What is the area, in square yards, of this town?
$(1 \text{ mile} = 1{,}760 \text{ yards})$

A. 404

B. $7{,}674$

C. $710{,}459$

D. $13{,}505{,}536$

Question ID dc2b4649

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: dc2b4649

Objects R and S each travel at a constant speed. The speed of object R is half the speed of object S. Object R travels a distance of $4x$ inches in y seconds. Which expression represents the time, in seconds, it takes object S to travel a distance of $24x$ inches?

A. $12y$

B. $3y$

C. $16y$

D. $6y$

Question ID a1d9d0a4

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: a1d9d0a4

How many fluid ounces are equivalent to 76 quarts? $(8 \text{ fluid ounces} = 1 \text{ cup and } 4 \text{ cups} = 1 \text{ quart})$

Question ID 02bf14c3

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: 02bf14c3

For an electric field passing through a flat surface perpendicular to it, the electric flux of the electric field through the surface is the product of the electric field's strength and the area of the surface. A certain flat surface consists of two adjacent squares, where the side length, in meters, of the larger square is 3 times the side length, in meters, of the smaller square. An electric field with strength 29.00 volts per meter passes uniformly through this surface, which is perpendicular to the electric field. If the total electric flux of the electric field through this surface is $4{,}640$ $\text{volts} \cdot \text{meters}$, what is the electric flux, in $\text{volts} \cdot \text{meters}$, of the electric field through the larger square?

Question ID db96d7a7

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	Hard

ID: db96d7a7

How many tablespoons are equivalent to 14 teaspoons? $(3 \text{ teaspoons} = 1 \text{ tablespoon})$