

Question ID 7425a5ae

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

ID: 7425a5ae

A product costs **11.00** dollars per pound. What is the cost, in dollars, for **6** pounds of the product?

ID: 7425a5ae Answer

Correct Answer: 66

Rationale

The correct answer is **66**. It’s given that a product costs **11.00** dollars per pound. Therefore, the cost for **6** pounds of the product is $\left(\frac{11.00 \text{ dollars}}{1 \text{ pound}}\right)(6 \text{ pounds})$, which is equivalent to **66.00**, or **66**, dollars.

Question Difficulty: Easy

Question ID 2d18778f

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

ID: 2d18778f

A customer spent **\$27** to purchase oranges at **\$3** per pound. How many pounds of oranges did the customer purchase?

ID: 2d18778f Answer

Correct Answer: 9

Rationale

The correct answer is **9**. It’s given that the customer spent **\$27** to purchase oranges at **\$3** per pound. Therefore, the number of pounds of oranges the customer purchased is **$\$27\left(\frac{1\text{ pound}}{\$3}\right)$** , or **9** pounds.

Question Difficulty: Easy

Question ID 77e4257c

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

ID: 77e4257c

How many meters are equivalent to **2,300** centimeters? (**100 centimeters = 1 meter**)

- A. **0.043**
- B. **23**
- C. **2,400**
- D. **230,000**

ID: 77e4257c Answer

Correct Answer: B

Rationale

Choice B is correct. It's given that **100** centimeters is equal to **1** meter. Therefore, **2,300** centimeters is equivalent to **(2,300 centimeters) ($\frac{1 \text{ meter}}{100 \text{ centimeters}}$), or **23** meters.**

Choice A is incorrect. **0.043** meters is equivalent to **4.3**, not **2,300**, centimeters.

Choice C is incorrect. **2,400** meters is equivalent to **240,000**, not **2,300**, centimeters.

Choice D is incorrect. **230,000** meters is equivalent to **23,000,000**, not **2,300**, centimeters.

Question Difficulty: Easy

Question ID 83e6ba91

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

ID: 83e6ba91

In a box of pens, the ratio of black pens to red pens is **8** to **1**. There are **40** black pens in the box. How many red pens are in the box?

- A. **5**
- B. **8**
- C. **40**
- D. **320**

ID: 83e6ba91 Answer

Correct Answer: A

Rationale

Choice A is correct. It’s given that the ratio of black pens to red pens is **8** to **1**. Therefore, there are $\frac{1}{8}$ as many red pens as black pens in the box. It’s also given that there are **40** black pens in the box. Therefore, the number of red pens is $\frac{1}{8}$ of the **40** black pens. Thus, the number of red pens is $40\left(\frac{1}{8}\right)$, or **5**.

Choice B is incorrect. This is the number of black pens in the box for every red pen.

Choice C is incorrect. This is the number of black pens in the box.

Choice D is incorrect. This is the number of red pens in the box if the ratio of black pens to red pens is **1** to **8**.

Question Difficulty: Easy

Question ID a956262c

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

ID: a956262c

The population density of Worthington is **290** people per square mile. Worthington has a population of **92,800** people. What is the area, in square miles, of Worthington?

- A. **102,400**
- B. **93,090**
- C. **320**
- D. **32**

ID: a956262c Answer

Correct Answer: C

Rationale

Choice C is correct. It’s given that the population density of Worthington is **290** people per square mile and Worthington has a population of **92,800** people. Therefore, the area of Worthington is **92,800 people** $\left(\frac{1 \text{ square mile}}{290 \text{ people}}\right)$, which is equivalent to $\frac{92,800 \text{ square miles}}{290}$, or **320** square miles.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID 96ca316d

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

ID: 96ca316d

How many yards are equivalent to **1,116** inches? (**1 yard = 36 inches**)

ID: 96ca316d Answer

Correct Answer: 31

Rationale

The correct answer is **31**. It's given that **1** yard is equal to **36** inches. Therefore, **1,116** inches is equivalent to **(1,116 inches)** $\left(\frac{1 \text{ yard}}{36 \text{ inches}}\right)$, or **31** yards.

Question Difficulty: Easy

Question ID d5c9314e

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

ID: d5c9314e

A kangaroo has a mass of **28** kilograms. What is the kangaroo's mass, in grams? (**1 kilogram = 1,000 grams**)

- A. **28,000**
- B. **1,028**
- C. **972**
- D. **784**

ID: d5c9314e Answer

Correct Answer: A

Rationale

Choice A is correct. It's given that a kangaroo has a mass of **28** kilograms and that **1** kilogram is equal to **1,000** grams. Therefore, the kangaroo's mass, in grams, is **28 kilograms** $\left(\frac{1,000 \text{ grams}}{1 \text{ kilogram}}\right)$, which is equivalent to **28,000** grams.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect and may result from conceptual or calculation errors.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID df18c1b6

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

ID: df18c1b6

How many teaspoons are equivalent to **44** tablespoons? (**3 teaspoons = 1 tablespoon**)

- A. **47**
- B. **88**
- C. **132**
- D. **176**

ID: df18c1b6 Answer

Correct Answer: C

Rationale

Choice C is correct. It's given that **3** teaspoons is equivalent to **1** tablespoon. Therefore, **44** tablespoons is equivalent to **(44 tablespoons) $\left(\frac{3 \text{ teaspoons}}{1 \text{ tablespoon}}\right)$** , or **132** teaspoons.

Choice A is incorrect. This is equivalent to approximately **15.66** tablespoons, not **44** tablespoons.

Choice B is incorrect. This is equivalent to approximately **29.33** tablespoons, not **44** tablespoons.

Choice D is incorrect. This is equivalent to approximately **58.66** tablespoons, not **44** tablespoons.

Question Difficulty: Easy

Question ID 385d607a

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

ID: 385d607a

An object's speed is **64 yards** per second. What is the object's speed, in feet per second? (**1 yard = 3 feet**)

- A. **61**
- B. **67**
- C. **94**
- D. **192**

ID: 385d607a Answer

Correct Answer: D

Rationale

Choice D is correct. Since **1** yard is equal to **3** feet, **64** yards is equal to **64 yards** $\left(\frac{3 \text{ feet}}{1 \text{ yard}}\right)$, or **192** feet. It follows that **64** yards per second is equivalent to **192** feet per second. Therefore, the object's speed is **192** feet per second.

Choice A is incorrect. A speed of **61** feet per second is equivalent to $\frac{61}{3}$, not **64**, yards per second.

Choice B is incorrect. A speed of **67** feet per second is equivalent to $\frac{67}{3}$, not **64**, yards per second.

Choice C is incorrect. A speed of **94** feet per second is equivalent to $\frac{94}{3}$, not **64**, yards per second.

Question Difficulty: Easy

Question ID 3e222bca

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

ID: 3e222bca

What length, in centimeters, is equivalent to a length of **51** meters? (**1 meter = 100 centimeters**)

- A. **0.051**
- B. **0.51**
- C. **5,100**
- D. **51,000**

ID: 3e222bca Answer

Correct Answer: C

Rationale

Choice C is correct. Since **1** meter is equal to **100** centimeters, **51** meters is equal to **51 meters**($\frac{100 \text{ centimeters}}{1 \text{ meter}}$), or **5,100** centimeters.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice B is incorrect and may result from dividing, rather than multiplying, **51** by **100**.

Choice D is incorrect. This is the length, in millimeters rather than centimeters, that is equivalent to a length of **51** meters.

Question Difficulty: Easy

Question ID 7a3c791d

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

ID: 7a3c791d

How many yards are equivalent to **612** inches? (**1 yard = 36 inches**)

- A. **0.059**
- B. **17**
- C. **576**
- D. **22,032**

ID: 7a3c791d Answer

Correct Answer: B

Rationale

Choice B is correct. It’s given that **1 yard = 36 inches**. Therefore, **612** inches is equivalent to **612 inches** $\left(\frac{1 \text{ yard}}{36 \text{ inches}}\right)$, which can be rewritten as $\frac{612 \text{ yards}}{36}$, or **17** yards.

Choice A is incorrect. This is the number of yards that are equivalent to **2.124** inches.

Choice C is incorrect. This is the number of yards that are equivalent to **20,736** inches.

Choice D is incorrect. This is the number of yards that are equivalent to **793,152** inches.

Question Difficulty: Easy

Question ID 21211fde

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

ID: 21211fde

A mechanical device in a workshop produces items at a constant rate of **60** items per hour. At this rate, how many items will the mechanical device produce in **3** hours?

ID: 21211fde Answer

Correct Answer: 180

Rationale

The correct answer is **180**. It's given that a mechanical device produces items at a constant rate of **60** items per hour. This rate can be written as $\frac{60 \text{ items}}{1 \text{ hour}}$. Let x represent the number of items the mechanical device will produce in **3** hours at the given rate. It follows that $\frac{60 \text{ items}}{1 \text{ hour}} = \frac{x \text{ items}}{3 \text{ hours}}$, which can be written as $\frac{60}{1} = \frac{x}{3}$, or $60 = \frac{x}{3}$. Multiplying each side of this equation by **3** yields $180 = x$. Therefore, at the given rate, the mechanical device will produce **180** items in **3** hours.

Alternate approach: It's given that a mechanical device produces items at a constant rate of **60** items per hour. At this rate, the mechanical device will produce $(\frac{60 \text{ items}}{1 \text{ hour}})(3 \text{ hours})$, or **180** items in **3** hours.

Question Difficulty: Easy

Question ID a5fc9a5b

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

ID: a5fc9a5b

A wind turbine completes **900** revolutions in **50** minutes. At this rate, how many revolutions per minute does this turbine complete?

- A. **18**
- B. **850**
- C. **950**
- D. **1,400**

ID: a5fc9a5b Answer

Correct Answer: A

Rationale

Choice A is correct. Dividing the number of revolutions by the number of minutes gives the number of revolutions the turbine completes per minute. It’s given that the wind turbine completes **900** revolutions in **50** minutes. Therefore, at this rate, this turbine completes $\frac{900}{50}$, or **18**, revolutions per minute.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect and may result from conceptual or calculation errors.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy