

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Ratios, rates, proportional relationships, and units	<div> <div></div> <div></div> <div></div> </div>

ID: 3f5398a6

1.1

For a person m miles from a flash of lightning, the length of the time interval from the moment the person sees the lightning to the moment the person hears the thunder is k seconds. The ratio of m to k can be estimated to be 1 to 5. According to this estimate, the person is how many miles from a flash of lightning if the time interval is 25 seconds?

- A. 10
- B. 9
- C. 6
- ~~D. 5~~

$$\frac{m}{k} = \frac{1}{5}$$

$$k = 25$$

$$m = 5 //$$

- เบาลิ่งที่โงทยตามไวข้างหลัง
- ระวังหน่วย
- ระวัง Indirect Rule of 3.

Question ID 000259aa

Assessment	Test	Domain	Skill	Difficulty
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ID: 000259aa

1.2

A group of monarch butterflies migrated from Chicago, Illinois, to Michoacán, Mexico, flying a total of 2,100 miles. It took a single butterfly in the group 120 days to travel this route one way. On average, how many miles did the butterfly travel per day?

- A. 0.057
- B. 0.729
- ~~C. 17.5~~
- D. 24

1 day
day mile
120 → 2,100
1 → 17.5 //

Question ID 312ba47c

Assessment	Test	Domain	Skill	Difficulty
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ID: 312ba47c

1.3

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?

~~X~~ 5

B. 8

C. 40

D. 320

$$\begin{array}{l} \rightarrow \frac{B}{R} = \frac{8}{1} \\ B = 40 \\ R = 5 // \end{array}$$

Question ID 15617f62

Assessment	Test	Domain	Skill	Difficulty
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ID: 15617f62

1.4

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

$$290 = \frac{92,800}{V}$$

$$V = 320 //$$

Question ID be35c117

Assessment	Test	Domain	Skill	Difficulty
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ID: be35c117

1.5

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

~~X~~ 18

B. 850

C. 950

D. 1,400

$$\frac{900}{50} = 18 //$$

Question ID 3f236a64

Assessment	Test	Domain	Skill	Difficulty
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ID: 3f236a64

1.6

x	y
1	4
3	12
5	20
40	k

160 //

In the table above, the ratio of y to x for each ordered pair is constant. What is the value of k ?

- A. 28
- B. 36
- C. 80
- ~~D. 160~~

Desmos $\frac{y}{x}$

Question ID 6310adbc

Assessment	Test	Domain	Skill	Difficulty
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ID: 6310adbc

1.7

The ratio of t to u is 1 to 2, and $t = 10$.

What is the value of u ?

- A. 2
- B. 5
- C. 10
- ☒ D. 20

$$\begin{aligned} \frac{t}{u} &= \frac{1}{2} \\ t &= 10 \\ u &= 20 // \end{aligned}$$

Question ID aeeaec96

Assessment	Test	Domain	Skill	Difficulty
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ID: aeeaec96

1.8

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

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

inch yard
36 → 1
612 → 17 //

Question ID e9841407

Assessment	Test	Domain	Skill	Difficulty
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ID: e9841407

1.9

Shaquan has 7 red cards and 28 blue cards. What is the ratio of red cards to blue cards that Shaquan has?

~~A~~ 1 to 4

B. 4 to 1

C. 1 to 7

D. 7 to 1

$$\begin{aligned}\frac{R}{B} &= \frac{7}{28} \\ &= \frac{1}{4} //\end{aligned}$$

Question ID ba62b0b0

Assessment	Test	Domain	Skill	Difficulty
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ID: ba62b0b0

1.10

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

kg	g
1	→ 1,000
28	→ 28,000

///

Question ID 24ad9dcb

Assessment	Test	Domain	Skill	Difficulty
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ID: 24ad9dcb

1.11

The weight of an object on Venus is approximately $\frac{9}{10}$ of its weight on Earth. The weight of an object on Jupiter is approximately $\frac{23}{10}$ of its weight on Earth. If an object weighs 100 pounds on Earth, approximately how many more pounds does it weigh on Jupiter than it weighs on Venus?

- A. 90
- B. 111
- ~~C. 140~~
- D. 230

$$\begin{aligned}
 V &= \frac{9}{10} E \\
 J &= \frac{23}{10} E \\
 E &= 100
 \end{aligned}$$

$|V - J| = 140 //$

Question ID d0d9ede4

Assessment	Test	Domain	Skill	Difficulty
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ID: d0d9ede4

1.12

How many feet are equivalent to 34 yards? (1 yard = 3 feet)

yardfoot

13

34102

//

Question ID 06a152cd

Assessment	Test	Domain	Skill	Difficulty
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ID: 06a152cd

1.13

To make a bakery’s signature chocolate muffins, a baker needs 2.5 ounces of chocolate for each muffin. How many pounds of chocolate are needed to make 48 signature chocolate muffins? (1 pound = 16 ounces)

Question ID 3ac09984

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ID: 3ac09984

1.14

Marta has 7,500 pesos she will convert to US dollars using a currency exchange service. At this time, the currency exchange rate is 1 peso = 0.075 US dollars. The exchange service will charge Marta a 2% fee on the converted US dollar amount. How many US dollars will Marta receive from the currency exchange after the 2% fee is applied?

~~A.~~ \$551.25

B. \$562.50

C. \$5,625.00

D. \$98,000.00

$$\begin{array}{cc}
 \text{P} & \$ \\
 1 & 0.075 \\
 7,500 & 7,500(0.075)(\underline{0.98}) \\
 & = 551.25 //
 \end{array}$$

2% fee

Question ID 99550621

Assessment	Test	Domain	Skill	Difficulty
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ID: 99550621

1.15

Makayla is planning an event in a 5,400-square-foot room. If there should be at least 8 square feet per person, what is the maximum number of people that could attend this event?

- A. 588
- ~~B. 675~~
- C. 15,274
- D. 43,200

$$\begin{array}{r} 8 = 5,400 \\ \hline \times \end{array}$$
$$\times = 675 //$$

$$D \geq 8$$

Question ID 808f7d6c

Assessment	Test	Domain	Skill	Difficulty
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ID: 808f7d6c

1.16

If $t = 4u$, which of the following is equivalent to $2t$?

~~A. $8u$~~

B. $2u$

C. u

D. $\frac{1}{2}u$

$$\begin{aligned} t &= 4u \\ 2t &= 8u \end{aligned}$$

Question ID 4347a032

Assessment	Test	Domain	Skill	Difficulty
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ID: 4347a032

1.17

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

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

TA	TE
1	3
44	132 //

Question ID d7a3179d

Assessment	Test	Domain	Skill	Difficulty
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ID: d7a3179d

1.18

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

in

36

1,116

yard

1

31

//

Question ID 3318d37b

Assessment	Test	Domain	Skill	Difficulty
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ID: 3318d37b

1.19

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

P

1

6

\$

11

66

//

Question ID 4837406c

Assessment	Test	Domain	Skill	Difficulty
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ID: 4837406c

1.20

An object travels at a constant speed of 6 centimeters per second. At this speed, what is the time, in seconds, that it would take for the object to travel 24 centimeters?

cm

6

24

s

1

4

//

Question ID 94660ba8

Assessment	Test	Domain	Skill	Difficulty
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ID: 94660ba8

1.21

A participant in a bicycle race completes the race with an average speed of 24,816 yards per hour. What is this average speed, in miles per hour? (1 mile = 1,760 yards)

y

1,760

24,816

mile

1

14.1

//

Question ID da9ffcf6

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ID: da9ffcf6

1.22

The ratio of the length of line segment XY to the length of line segment ZV is 6 to 1. If the length of line segment XY is **102** inches, what is the length, in inches, of line segment ZV ?

- ~~X.~~ 17
- B. 96
- C. 102
- D. 612

→ $\frac{XY}{ZV} = \frac{6}{1}$

— $XY = 102$

$ZV = 17 //$