

**Advanced
Complete
MathSmart®**

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Answers

195

6

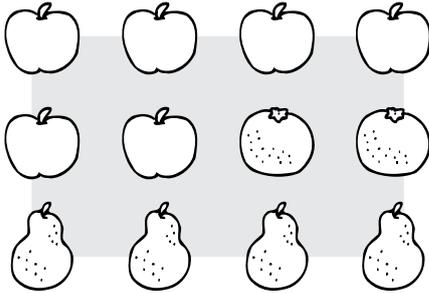
Ratios and Rates

solving a variety of word problems that involve ratios and rates

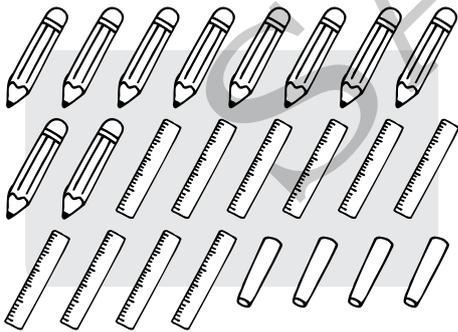


Math Skills

Ratios



- ① apples to oranges _____ : _____
- ② apples to pears _____
- ③ pears to oranges _____
- ④ apples to all _____
- ⑤ pears to all _____



- ⑥ pencils to rulers _____
- ⑦ pencils to chalks _____
- ⑧ chalks to rulers _____
- ⑨ chalks to all _____
- ⑩ rulers to all _____

Rates

⑪  \$3.84
\$ _____ /can

⑫  \$1.50
\$ _____ /egg

⑬  \$4.40
\$ _____ /L

⑭  \$9.25
\$ _____ /kg

⑮  145 km in 2 h
_____ km/h

⑯  90.75 km in 3 h
_____ km/h



Problem Solving

Try This!

In Lucy's collection, there are 5 red marbles for every 3 blue marbles. If Lucy has 20 red marbles, how many blue marbles does she have?

Solution:

Step 1: Find the equivalent ratio of "red" to "blue".

$$\begin{array}{c} \text{red} \quad \text{to} \quad \text{blue} \\ \text{marbles} \quad \text{to} \quad \text{marbles} \end{array} = 5:3 = 20:\boxed{}$$

$\swarrow \times 4 \searrow$
 $\nwarrow \times 4 \nearrow$



Step 2: Write a concluding sentence.

Lucy has blue marbles.

To find an equivalent ratio, multiply or divide both sides of the ratio by the same number.

- ① Refer to the question above.
- a. If Lucy has 30 red marbles, how many blue marbles does she have?

Lucy has _____ blue marbles.

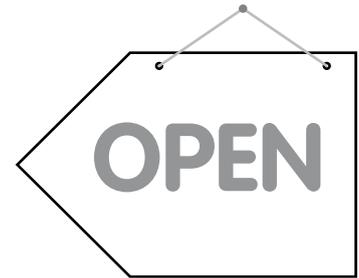
- b. If Lucy has 15 blue marbles, how many red marbles does she have?

Lucy has _____ red marbles.

- ① A sign is made by attaching the base of a triangle to a square. The ratio of the square's side length to the triangle's height is 3:2. The height of the triangle is 60 cm. What is the area of the sign?

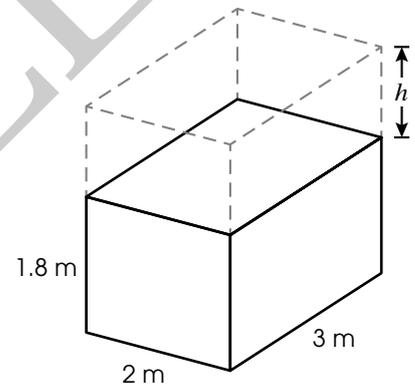
$$3:2 = \text{_____}:60$$

$$\begin{aligned} \text{Area: } & \text{_____} \times \text{_____} + \text{_____} \times \text{_____} \div 2 \\ & = \text{_____} \end{aligned}$$



The area of the sign is _____ .

- ② Philip wants to raise the platform by a height of h . To do so, he needs 7.2 m^3 of concrete. How much higher will the platform be? What will the new height be? Write an equation and solve it.



- ③ At a sandwich shop, Trevor can choose 1 type of bread and 1 topping. What is the probability that he buys a sandwich that costs \$5 or less?

<i>Delish Sandwich</i>	
<u>Bread</u>	<u>Topping</u>
White \$3.99	Ham 75¢
Wheat \$4.25	Turkey 85¢
Rye \$4.45	Tuna 55¢

Topics covered:

Question 1

- ratios
- area

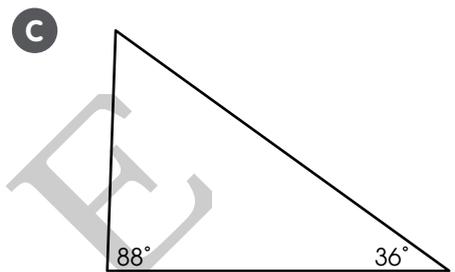
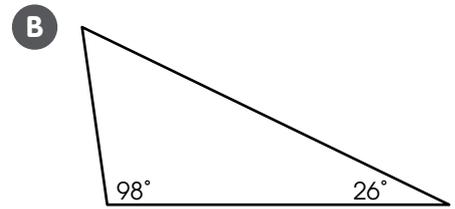
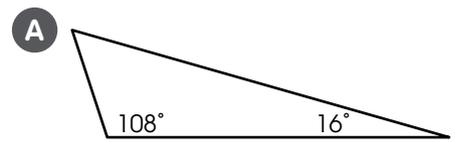
Question 2

- volume
- equations

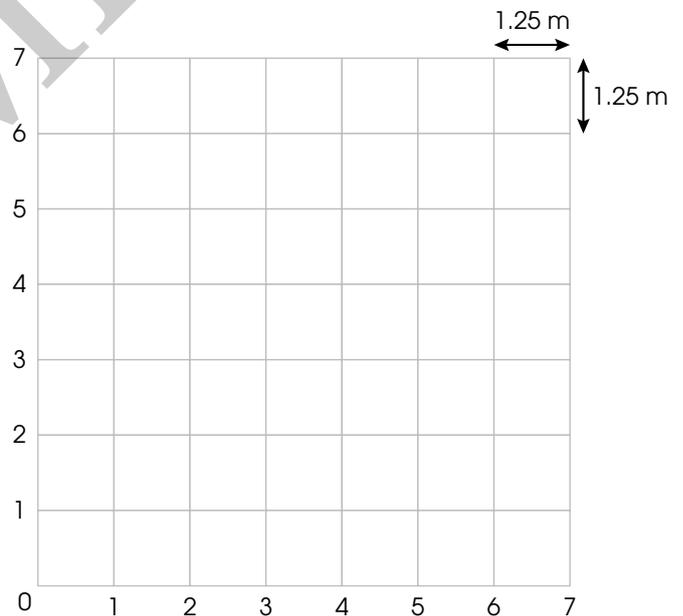
Question 3

- decimals
- probability

- ④ In a series of triangles, the changes of two of the angles in each triangle follow a pattern. What are the angles of Triangle E? Name it by its sides and angles.



- ⑤ Eric plants trees in the corners of his garden at (1,5), (3,1), (6,1), and (4,5). What is the area of Eric's garden?



Topics covered:

Question 4

- angles
- triangles
- patterning

Question 5

- decimals
- area
- Cartesian coordinate plane