

Ratio Topic Test

1. What is a ratio?

A ratio is used to compare two or more quantities with the same units.

2. Simplify the following ratios:

a) 112 : 48

$$\div 16 \quad \div 16$$

$$7 : 3 \quad \checkmark$$

b) 1.84 : 2.4

$$\times 100 \quad \times 100$$

$$184 : 240$$

$$\div 8 \quad \div 8$$

$$23 : 30 \quad \checkmark$$

c) $2\frac{1}{6} : \frac{3}{4}$

$$\frac{2}{12} \times \frac{13}{6} : \frac{3}{4} \times \frac{3}{12}$$

$$26 : 9$$

3. Find the value of x if the ratios below are equivalent:

a) $x : 9 = 10 : 45$

$$\div 5$$

$$\therefore x = 2$$

b) $32 : 24 = x : 192$

$$\times 8$$

$$x = 256$$

Name: _____

4. For every 5 merits Rebekah has, Jessica has 3 merits. If Jessica has 72 merits, how many merits does Rebekah have?

$$R : J$$

$$5 : 3$$

$$72$$

$$\div 3 \begin{cases} 3 \text{ parts} = 72 \text{ merits} \\ 1 \text{ part} = 24 \text{ merits} \\ 5 \text{ parts} = 120 \text{ merits} \end{cases}$$

Rebekah has 120 merits.

5. A fruit salad is made with pineapple, pears and peaches in the ratio 2 : 3 : 5. What fraction of the whole fruit salad is pineapple?

$$\begin{array}{l} P: \text{ Pear Peaches} \\ 2 : 3 : 5 \\ \hline 11 \text{ parts} \end{array} \quad \frac{2}{11}$$

6. Two friends buy a lottery ticket. One of them pays \$4 towards the ticket while the other one pays \$5 towards the ticket. They agree to split any winnings in the same ratio. If they win \$8532 how much does each of them get?

$$4 : 5 \quad \div 9 \begin{cases} 9 \text{ parts} = \$8532 \\ 1 \text{ part} = \$948 \\ 4 \text{ parts} = \$3792 \\ 5 \text{ parts} = \$4740 \end{cases}$$

They get \$3792 and \$4740.

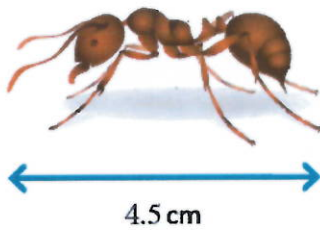
7. The distance between two points in **real life** is 1260 m. What will be the distance between these points on a **scale drawing** with a scale of 1 : 10000?

$$\begin{array}{l} \text{scale} \\ P \qquad R \\ 1 \text{ cm} : 10000 \text{ cm} \end{array}$$

$$\times 12.6 \quad \begin{array}{l} 1 \text{ cm} : 100 \text{ m} \\ 12.6 \text{ cm} : 1260 \text{ m} \end{array} \quad \times 12.6$$

\therefore the distance on the scale drawing is 12.6 cm

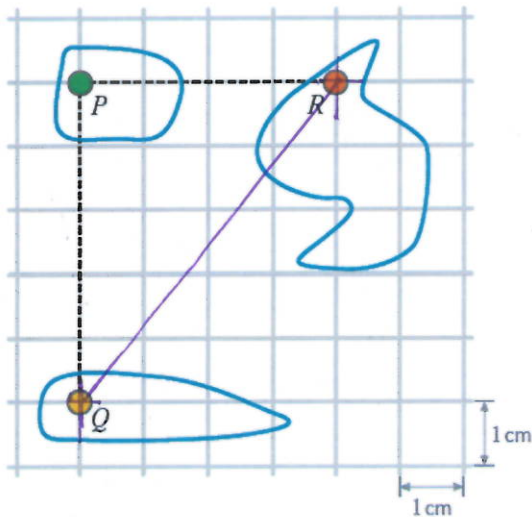
8. Look at the scale drawing of a fire ant. If the scale drawing of the ant has scale 12 : 1, find the length of the ant in real life.



$$\begin{array}{l} P \quad R \\ 12 : 1 \\ 4.5 \text{ cm} \end{array}$$

$$\begin{array}{l} \div 12 \left(\begin{array}{l} 12 \text{ parts} = 4.5 \text{ cm} \\ 1 \text{ part} = 0.375 \text{ cm} \end{array} \right) \div 12 \\ \therefore \text{length of ant is } 0.375 \text{ cm} \end{array}$$

9. Point P , Q and R are the locations of 3 islands on this map. Each grid on the map is 1 cm by 1 cm.



a) If the real life distance between points P and Q is 8 km, find the scale used for this map.

$$\begin{array}{l} 5 \text{ cm} = 8 \text{ km} \\ 5 \text{ cm} = 8000 \text{ m} \\ \div 5 \left(\begin{array}{l} 5 \text{ cm} = 800000 \text{ cm} \\ 1 \text{ cm} = 160000 \text{ cm} \end{array} \right) \div 5 \\ \therefore \text{scale} \\ 1 : 160000 \end{array}$$

b) Using this map scale, find the distance between Q and R in kilometres.

$$\begin{array}{l} 1 \text{ cm} = 160000 \text{ cm} \\ 5.5 \text{ cm} = 880000 \text{ cm} \\ = 8800 \text{ m} \\ = 8.8 \text{ km} \end{array}$$