

Name:

ANS.

Form:

<p>1</p>	<p>Simplify these ratios:</p> <p>a $18 : 24 \div 6$</p> <p>b $8 : 2 \div 2$</p> <p>c $24 : 6 \div 6$</p> <p>d $56 : 8 \div 8$</p> <p>e $10 \times 4.5 : 2.4 \times 10$</p> <p>f $0.21 : 0.6 \times 100$</p> <p>g $2.5 : 3 \times 10$</p> <p>h $3\frac{1}{2} : 2\frac{1}{5} \xrightarrow{10 \times} \frac{7}{2} : \frac{11}{5} \xrightarrow{10 \times} 35 : 22$</p>	<p>a) $3 : 4$</p> <p>b) $4 : 1$</p> <p>c) $4 : 1$</p> <p>d) $7 : 1$</p> <p>e) $45 : 24 \div 3 = 15 : 8$</p> <p>f) $21 : 60 \div 3 = 7 : 20$</p> <p>g) $25 : 30 \div 5 = 5 : 6$</p> <p>h) $35 : 22$</p>
<p>2</p>	<p>Find the missing numbers:</p> <p>a $6 : 7 = \square : 21$</p> <p>b $4 : 3 = 12 : \square$</p> <p>c $7 : \square = 28 : 16$</p> <p>d $\square : 3 = 48 : 36$</p> <p>e $1 : 18 = 3\frac{1}{2} : \square$</p>	<p>a) $(6 : 7) \times 3 = 18 : 21$</p> <p>b) $(4 : 3) \times 3 = 12 : 9$</p> <p>c) $28 : 16 \div 4 = 7 : 4$</p> <p>d) $48 : 36 \div 12 = 4 : 3$</p> <p>e) $1 : 18 \times 3\frac{1}{2} = 3\frac{1}{2} : 63$</p>
<p>3</p>	<p>Simplify the following ratios:</p> <p>a $6 \text{ m} : 120 \text{ cm}$</p> <p>b $200 \text{ g} : 1.2 \text{ kg}$</p> <p>c $45 \text{ min} : 3 \text{ h} \times 60$</p> <p>d $2 \text{ h} : 6 \text{ min}$</p>	<p>a) $600 : 120 \div 60 = 10 : 2 = 5 : 1$</p> <p>b) $200 : 1200 \div 200 = 1 : 6$</p> <p>c) $45 : 180 \div 45 = 1 : 4$</p> <p>d) $120 : 6 \div 6 = 20 : 1$</p>
<p>4</p>	<p>The following ingredients are used to make a coloured render cement:</p> <p>2 parts cement, 6 parts sand, 3 parts lime, 4 parts colouring and 15 parts water</p> <p>a What is the ratio of cement to water?</p> <p>b What is the ration of cement to sand to lime?</p> <p>c Express the ratio of each ingredient to the others in simplest form.</p> <p>d Express the ratio of each ingredient to the total in simplest form.</p>	<p>a) $c : w = 2 : 15$</p> <p>b) $c : s = 2 : 6 = 1 : 3$</p> <p>c) $c : s : l : cl : w = 2 : 6 : 3 : 4 : 15$</p> <p>d) $c : t = 2 : 30 = 1 : 15$ $s : t = 6 : 30 = 1 : 5$ $l : t = 3 : 30 = 1 : 10$</p> <p>$cl : t = 4 : 30 = 2 : 15$ $w : t = 15 : 30 = 1 : 2$</p>

Skills Revision Ratio, Scale & Similar figures

5 Cordial and water are combined in the ratio of 1 : 7.

a) How much water needs to be combined with 125 mL of cordial?

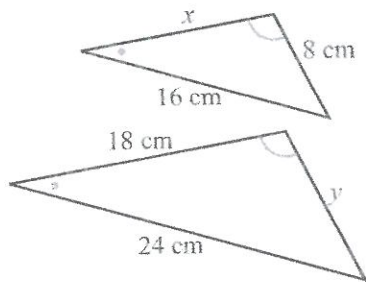
b) If I wanted to make 2 litres of the mixed drink, then how much of each do I need?

$C:W$
 $1:7$
a) $125:875$ 875mL water.

b) $1:7$ $1+7=8$ $2000 \div 8 = 250$
 $250:1750$

6 Find the value of the pronumerals in the following pairs of triangles:

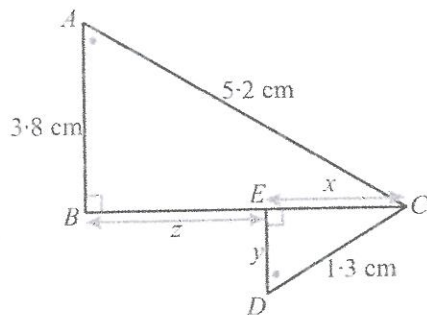
a



a) $\frac{24}{16} = 1.5$
 $18 \div 1.5 = x$
 $120 = x$

$8 \times 1.5 = y$
 $12 \text{ cm} = y$

b

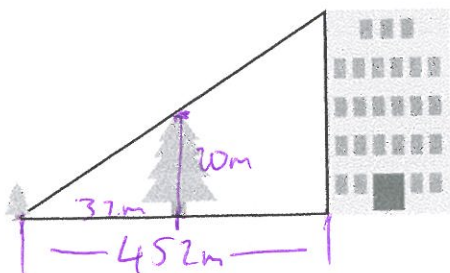


b) $\frac{5.2}{1.3} = 4$
 $y = 3.8 \div 4$
 $y = 0.95 \text{ cm}$

$x = \sqrt{1.3^2 - 0.95^2}$
 $x = 0.887...$

$x + z = 0.887 \times 4$
 $x + z = 3.5496...$
 $z = 3.5496 - x$
 $z = 2.66 \text{ cm}$

7 Tran wants to determine the height of the building. He stands 452 m away from the foot of the building. There is a tree 32 m in front of him, which is 20 m high. How tall is the building to the nearest metre.



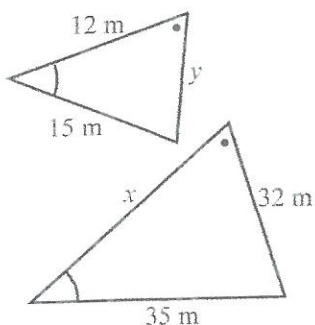
$452 \div 32 = 14.125$

$20 \times 14.125 = 282.5 \text{ m}$
 $\approx 283 \text{ m}$

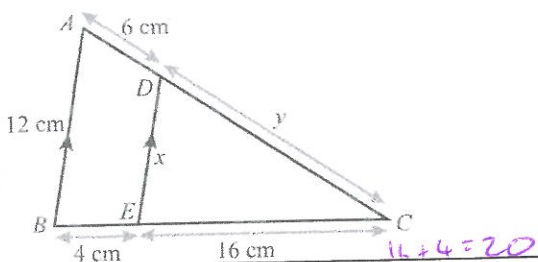
Skills Revision Ratio, Scale & Similar figures

8 Find the value of the pronumerals in the following pairs of triangles:

a



b



$$\frac{12}{15} = \frac{2\frac{1}{3}}{x}$$

$$12 \times 2\frac{1}{3} = x$$

$$28m = x$$

$$y = 32 \div 2\frac{1}{3}$$

$$= 13\frac{5}{7}$$

$$= 13 + 71\frac{5}{7}$$

$$b) \frac{20}{16} = 1.25$$

$$x = 12 \div 1.25$$

$$= 9.6 \text{ cm}$$

$$y = (y+6) \div 1.25$$

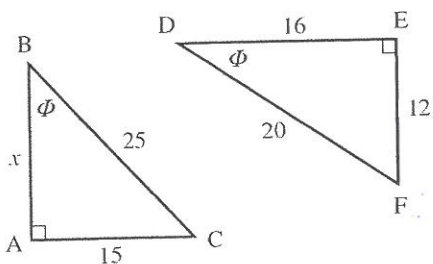
$$y = \frac{y}{1.25} + \frac{6}{1.25} = y - \frac{y}{0.25} = 4.8 \quad y = \frac{4.8}{0.2} = 24 \text{ cm}$$

9 In the triangles above $\triangle ABC \sim \triangle DEC$. What is the scale factor if $\triangle ABC$ is regarded as the object?

$$SF = \frac{\text{Image}}{\text{Object}} = \frac{16}{20} = 0.8$$

10 Tell if the figures below are similar. If they are, give a reason and state the similar triangles using the symbol for similar (\sim).

a)



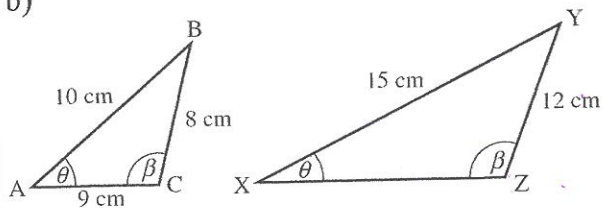
$$a) \frac{BC}{DF} = \frac{AC}{EF}$$

$$\frac{25}{20} = \frac{15}{12}$$

$$1.25 = 1.25$$

RHS
 $\triangle ABC \sim \triangle EDF$

b)



$$b) \frac{XY}{AB} = \frac{YZ}{BC}$$

$$\frac{15}{10} = \frac{12}{8}$$

$$1.5 = 1.5$$

SAS (or AAA)
 $\triangle ABC \sim \triangle XYZ$