

Outcome 2 - Similar areas

Bronze example

Examples...

These 2 carpet samples are mathematically similar.

Find the missing area...



Area = 8 m^2 Area = ?

Linear S.F. = $\frac{\text{big}}{\text{wee}} = \frac{9}{2}$

Area S.F. = $\left(\frac{9}{2}\right)^2$ Area = $\frac{81}{4} \times 8$

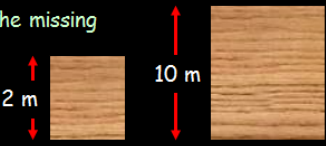
$= \frac{81}{4}$ $= 162 \text{ m}^2$

Silver example

Examples...

These 2 flooring samples are mathematically similar.

Find the missing area...



Area = ? Area = 180 m^2

Linear S.F. = $\frac{\text{wee}}{\text{big}} = \frac{2}{10} = \frac{1}{5}$

Area S.F. = $\left(\frac{1}{5}\right)^2$ Area = $\frac{1}{25} \times 180$

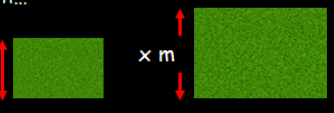
$= \frac{1}{25}$ $= 7.2 \text{ m}^2$

Gold example

Examples...

These 2 turf samples are mathematically similar.

Find the missing length...



Area = 36 m^2 Area = 900 m^2

Area S.F. = $\frac{900}{36} = 25$ Calculate linear scale factor...

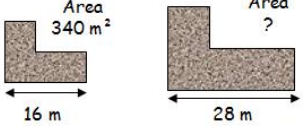
Linear S.F. = $\sqrt{25} = 5$

$x = 5 \times 4 = 20 \text{ m}$ Find missing side...

Bronze Questions

The following objects are mathematically similar. Calculate the missing areas...

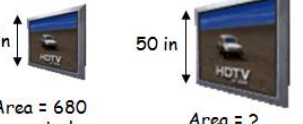
1



Area = 340 m^2 Area = ?

16 m 28 m

2



20 in 50 in

Area = 680 square inches Area = ?

3



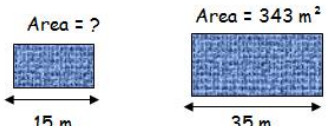
12 cm 30 cm

Area = 480 cm^2 Area = ?

Silver Questions

The following objects are mathematically similar. Calculate the missing areas...

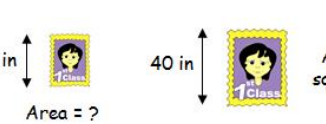
1



Area = ? Area = 343 m^2

15 m 35 m

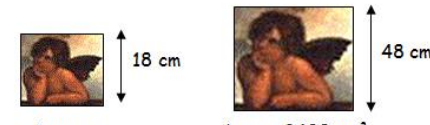
2



10 in 40 in

Area = ? Area = 200 square inches

3



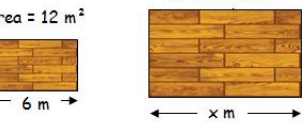
18 cm 48 cm

Area = ? Area = 2400 cm^2

Gold Questions

The following objects are mathematically similar. Calculate the missing sides...

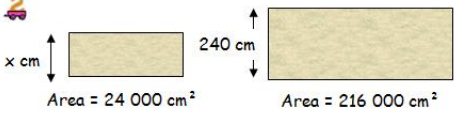
1



Area = 12 m^2 Area = 588 m^2

6 m x m

2



x cm 240 cm

Area = $24\,000 \text{ cm}^2$ Area = $216\,000 \text{ cm}^2$

3



x cm 63 cm

Area = 35 cm^2 Area = 2835 cm^2

Bronze Answers

1. 1041.25 m^2
2. 4250 square inches
3. 3000 cm^2

Silver Answers

1. 63 m^2
2. 12.5 square inches
3. 337.5 cm^2

Gold Answers

1. 42 m
2. 80 cm
3. 7 cm