

Scale Problems

Monday, December 16, 2019 1:07 PM

A model of an 18 wheeler ^{trailer} is 20cm long.
In real life the trailer is 8m long.

a) What is the scale of the model?
Scale is a ratio model : real life

$$20\text{cm} : 8\text{m}$$

$$20 : 800$$

$$2 : 80$$

$$1 : 40$$

b) The model's width is 4cm. What would the width of the truck trailer be?

$$\frac{\text{model}}{\text{r. life}} \frac{1}{40} = \frac{4\text{cm}}{x} \quad x = 40 \cdot 4 = 160\text{cm or } 1.6\text{m}$$

c) The truck wheels are 1.5m high. How high are they on the model.

$$\frac{\text{model}}{\text{r. life}} \frac{1}{40} = \frac{y}{1.5\text{m}} \quad y = \frac{1 \times 1.5\text{m}}{40} = \underline{.0375\text{m}} \text{ or } \underline{3.75\text{cm}}$$

Try: The blueprints of a house have a scale of 1:400.

a) The living room is 18m long. How long would it be on the blueprints?

$$\frac{\text{blueprints}}{\text{r. life}} \frac{1}{400} = \frac{x}{18\text{m}} \quad x = \frac{18 \cdot 1}{400} = \underline{.045\text{m}} = \underline{4.5\text{cm}}$$

b) The blueprints show the bathroom as 2.4cm long. How long would it be in real life?

be in real life!

$$\frac{1}{400} = \frac{2.4 \text{ cm}}{y}$$

$$y = \frac{2.4 \times 400}{1}$$

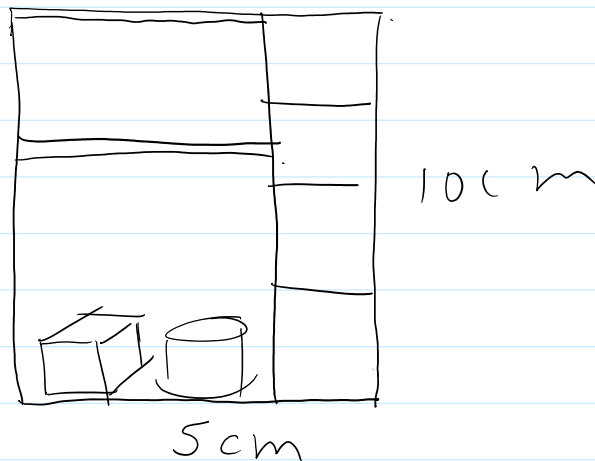
$$y = 960 \text{ cm or } 9.6 \text{ m}$$

CMHC fees

Canadian Mortgage & Housing Corporation
5 - 9.99% down 4% of purchase price.

10 - 14.99% 3.1%

15 - 19.99% 2.8%



$$5 \text{ cm} : 1.5 \text{ m}$$

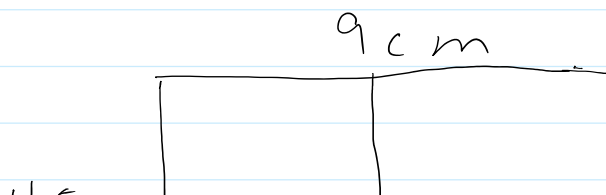
$$5 : 150$$

$$1 : 30$$

$$\frac{\text{dia}}{\text{r.l.}} = \frac{1}{200} = \frac{71}{9 \text{ m}}$$

$$x = \frac{9.1}{200} = .045 \text{ m}$$

$$\text{or } 4.5 \text{ cm}$$





$$(13) \frac{\text{model}}{\text{real life}} = \frac{x}{14 \text{ m}} \quad x = \frac{1.4 \text{ m}}{700} = 0.2 \text{ m} \quad \text{or} \quad 2 \text{ cm}$$

① $2.4 \text{ m} \quad \underline{240} \text{ cm} \quad 100 \text{ cm} = 1 \text{ m}$

② $\frac{84 \text{ in}}{12} \quad \underline{7} \text{ ft} \quad 12 \text{ in} = 1 \text{ ft}$

③ $1.2 \text{ km} \quad \underline{1200} \text{ m} \quad 1 \text{ km} = 1000 \text{ m}$

② Ratio $2.5 \text{ m to } 15 \text{ cm}$

$$250 : 15 = 50 : 3$$

$$18 \text{ mm to } 2 \text{ m}$$

$$18 : 2000$$

$$9 : 1000$$

③ $\frac{3}{5} = \frac{12}{x} \quad x = \frac{5 \times 12}{3} = 20$

$\frac{4}{y} = \frac{10}{25} \quad y = \frac{4 \times 25}{10} = 10$

④ Scale $\rightarrow$ ratio diagram : real life

Scale factor $\rightarrow$ number

original $\times$ scale factor = diagram
(real life)

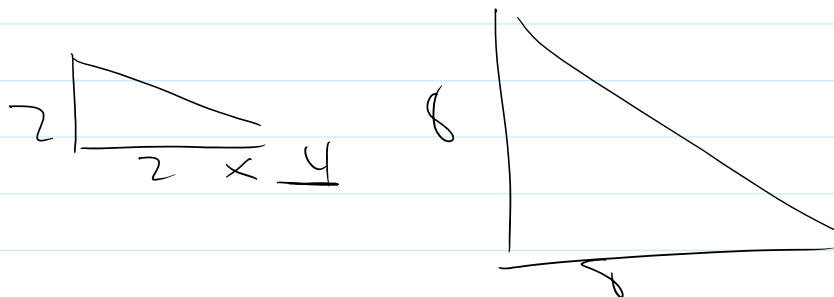
width model = 5 cm 5 cm : 18 m
real house = 18 m 5 : 1800
 1 : 360

⑤ diagram = 6 cm 6 cm : 8 mm
r. life = 8 mm 60 : 8
 15 : 2

⑫ $\frac{1}{400} = \frac{x}{45 \text{ m}}$ $x = \frac{45}{400} = 1125 \text{ m}$
 11.3 cm

⑧ 540 km 7 cm
7 cm : 540 km
7 : 54000000

⑦ 2.5 cm : 15 km
2.5 : 1500000
25 : 15000000
25 25
1 : 600000



(15) orig 8.5 cm s.f. 6.4

$$8.5 \times 6.4 = 54.4 \text{ cm}$$

(14) model 30 cm

$$\frac{30}{5.5} = 16.5 \text{ cm}$$
$$1.65 \text{ m}$$

