

BC Math 9 Proportional Reasoning 2 (solutions)

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1. How many mm in 5 m?

There are 10 mm in one cm. There are 100 cm in 1 meter.

$$5 \text{ m} = 500 \text{ cm} = 500 \times 10 = 5000 \text{ mm}$$

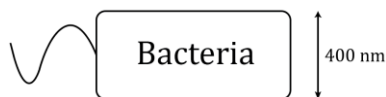
2. 3 feet = 1 yard and 12 inches = 1 foot. 1 mile = 1760 yards. How many inches in a mile?

$$1 \text{ mile} = 1760 \text{ yards} = 5280 \text{ feet} = 63360 \text{ inches.}$$

3. How Wheels cars are at a scale of 1:64. If the toy car is 4 cm long, how long is it in real life?

$$64 \times 4 = 256 \text{ cm} = 2.56 \text{ m}$$

4. Below is a diagram of a bacteria cell. Suppose the ruler height of this bacteria is 2 cm. The diagram states that the real height of the bacterial is 400 nm. 1000 nm = 1 micrometer. And 1000 micrometers = 1 mm. Find the scale of this diagram.



Scale is picture : real

$$2 \text{ cm} : 400 \text{ nm}$$

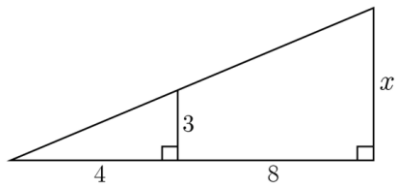
$$20 \text{ mm} : 400 \text{ nm}$$

$$20\,000\,000 \text{ nm} : 400 \text{ nm}$$

$$200,000 : 4$$

$$50,000 : 1$$

5. Find x in the diagram below:



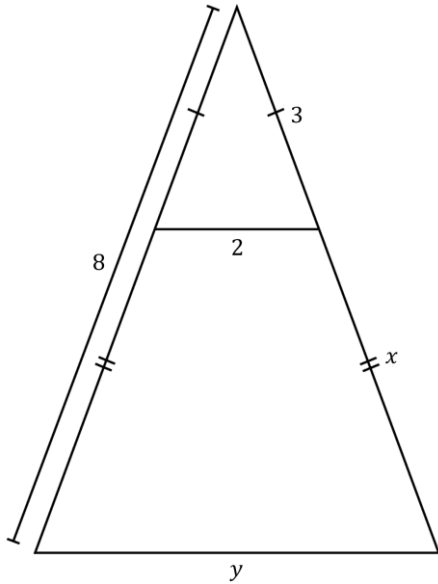
Find x

$$\frac{x}{3} = \frac{4+8}{4}$$

$$4x = 36$$

$$x = 9$$

6. Find x and y in the diagram below:

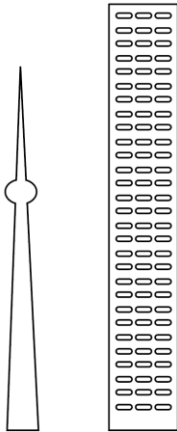


$$x = 8 - 3 = 5$$

$$\frac{2}{3} = \frac{y}{8}$$

$$3y = 16 \rightarrow y = \frac{16}{3}$$

7. The CN Tower is about 553 m tall. Suppose the picture of the CN Tower below measures 5.53 cm. Suppose that a picture of a new building that is taller than the CN Tower measures 6.5 cm. How tall is this taller building in real life?

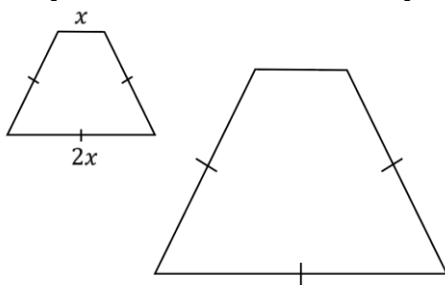


$$\frac{553}{5.53} = \frac{x}{6.5}$$

$$100 = \frac{x}{6.5}$$

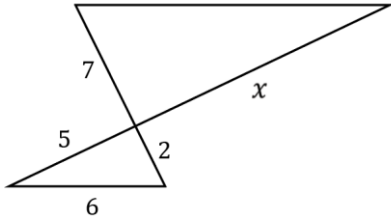
$$x = 650 \text{ m}$$

8. The perimeter of the smaller shape below is 21 m.



- a. Given the base of the larger object is double that of the smaller object Find the length of the shortest side of the larger object.
6 m
- b. Express the perimeter of the smaller object to the perimeter of the larger object as a simplified ratio.
21 : 42
1:2

9. Your turn: Find x in the diagram below:



$$\frac{2}{5} = \frac{7}{x}$$

$$2x = 35$$

$$x = \frac{35}{2}$$