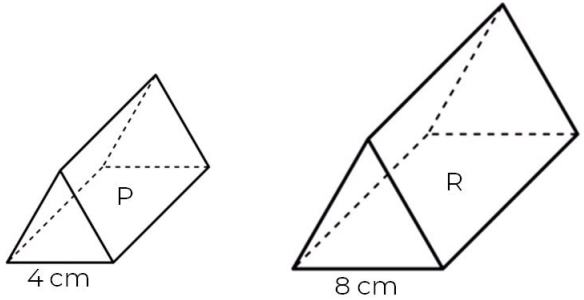
Find volumes of similar shapes given corresponding lengths

Maths

Mr Chan

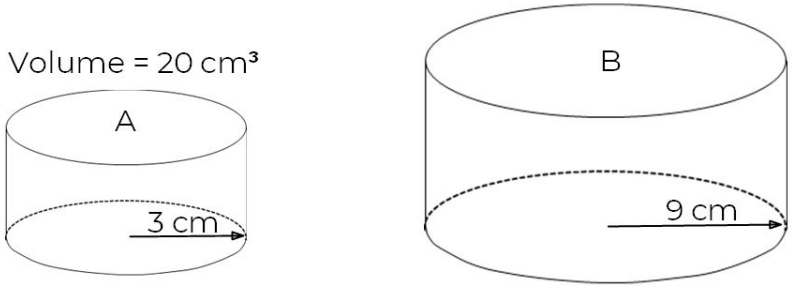
Find volumes of similar shapes given corresponding lengths

1. The triangular prisms P and R are similar.
The volume of prism P is 80 cm^3



a) Work out the linear scale factor of enlargement.
b) Work out the volume of prism R.

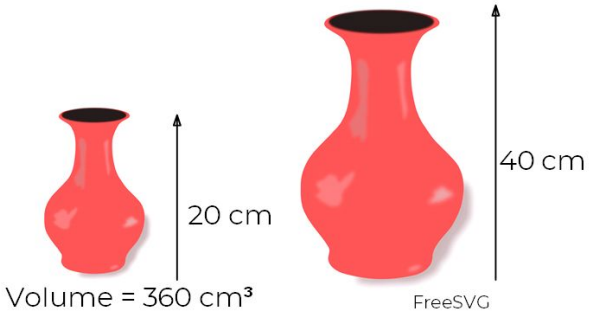
2. Cylinder A and B are similar.



a) Work out the linear scale factor of enlargement.
b) Work out the volume of cylinder B.

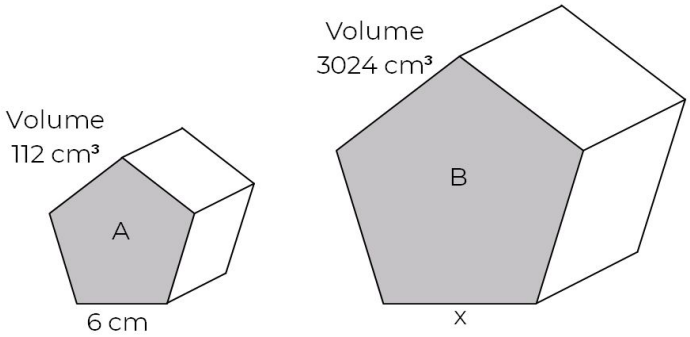
Find volumes of similar shapes given corresponding lengths

3. Here are two similar vases.



Alisha says that it will take double the amount of water to fill the larger vase because it is double the height.
Show that Alisha is wrong.

4. Pentagonal prisms A and B are similar.

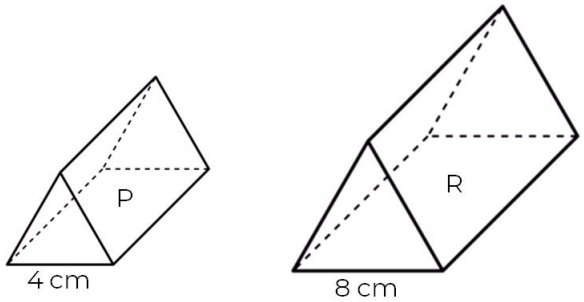


Work out the side length marked x.

Answers

Find volumes of similar shapes given corresponding lengths

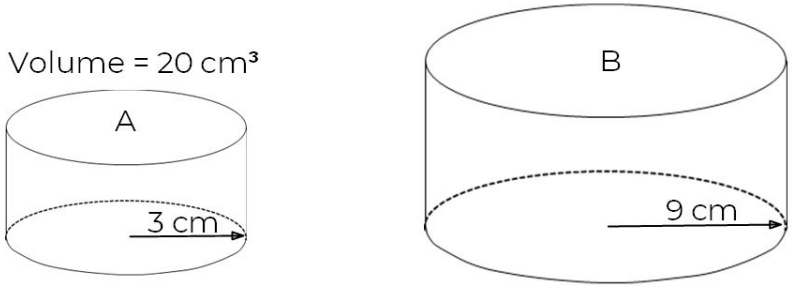
1. The triangular prisms P and R are similar.
The volume of prism P is 80 cm^3



a) Work out the linear scale factor of enlargement. 2

b) Work out the volume of prism R. 320 cm^3

2. Cylinder A and B are similar.

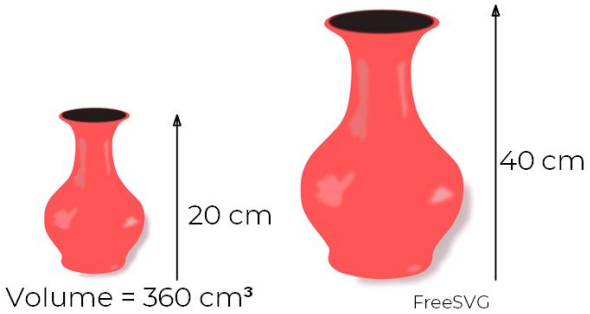


a) Work out the linear scale factor of enlargement. 3

b) Work out the volume of cylinder B. 540 cm^3

Find volumes of similar shapes given corresponding lengths

3. Here are two similar vases.

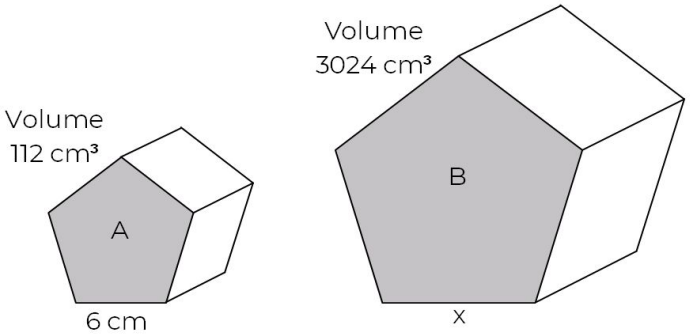


Alisha says that it will take double the amount of water to fill the larger vase because it is double the height.
Show that Alisha is wrong.

Linear scale factor = 2

Volume of larger vase = $360 \times 2^3 = 2880$ cm^3

4. Pentagonal prisms A and B are similar.



Work out the side length marked x.

Volume scale factor = 27

Linear scale factor = $\sqrt[3]{27} = 3$

Side x = 6 × 3 = 18 cm