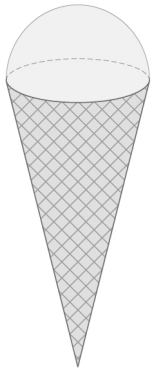
1 Outside a cafe there is a large plastic ice cream cornet.

The cornet is a hemisphere on top of a cone.



The cone and the hemisphere each have radius 24 cm

The cone has perpendicular height 117 cm

Volume of a cone $= \frac{1}{3}\pi r^2 h$ r is the radius h is the perpendicular height	Volume of a hemisphere $= \frac{2}{3}\pi r^3$ r is the radius

1 (a) Work out the total volume of the cornet.

[4 marks]

Volume of a cone $= \frac{1}{3} \times \pi \times 24^2 \times 117 = 22\,464\,\pi$ (1)

Volume of a hemisphere $= \frac{2}{3} \times \pi \times 24^3 = 9216\,\pi$ (1)

Total volume $: 22\,464\,\pi + 9216\,\pi = 31680\,\pi$ (1)

$31680 \times 3.142\ldots = 99538\ldots$

Answer 99 538 (1) cm^3

1 (b) The actual cornets that the cafe sells are **similar** to the plastic one.

For the actual cornets, the cone and the hemisphere each have radius 2 cm

How many times greater is the volume of the plastic cornet than an actual cornet?

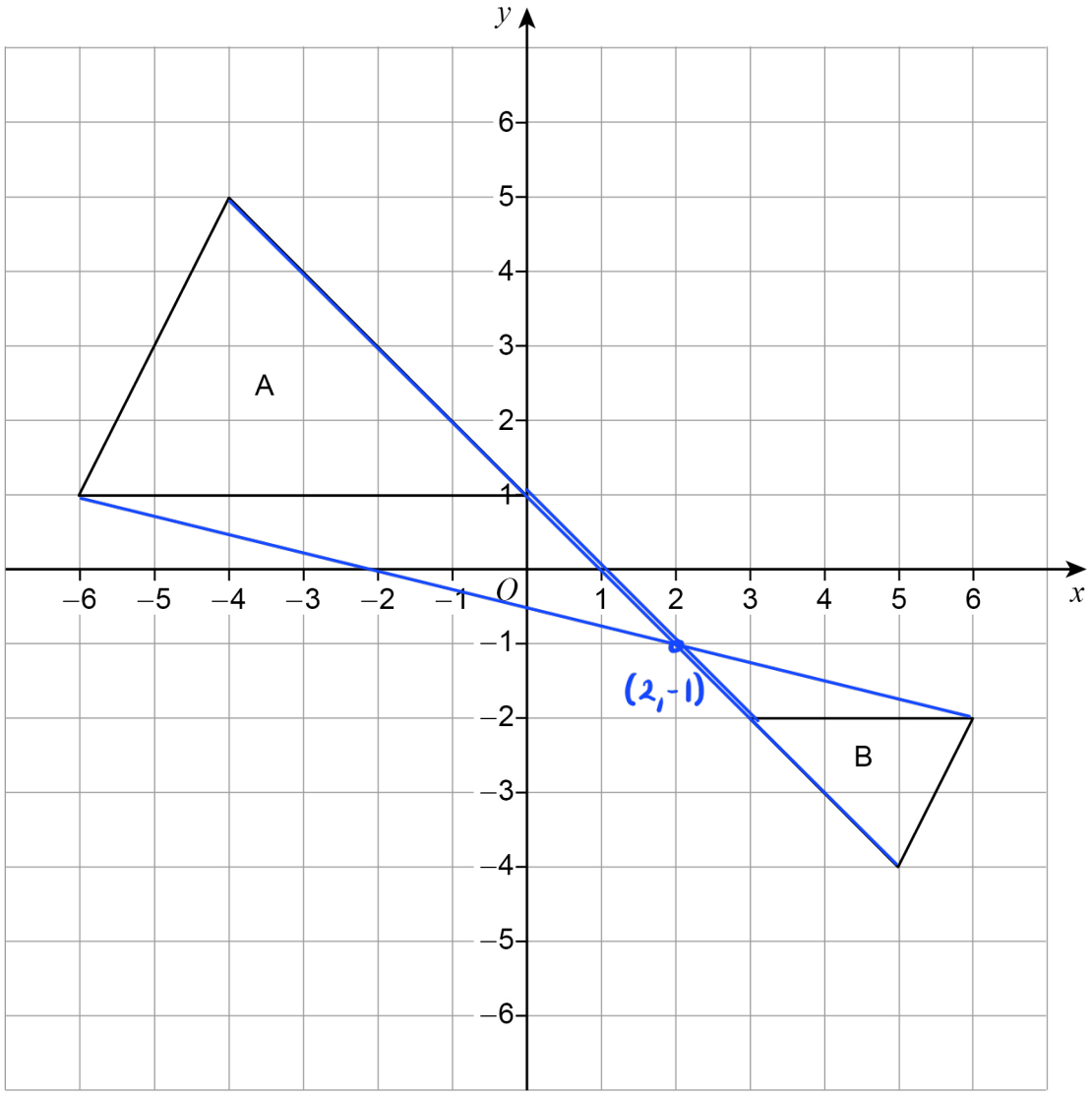
[3 marks]

scale factor of radius : $\frac{24}{2} = 12$ (1)

scale factor of volume : $12^3 = 1728$ (1) (1)

Answer 1728

2 Shape A is enlarged to shape B.



2 (a) Circle the scale factor of the enlargement.

[1 mark]

$-\frac{1}{2}$ (1) -2 $\frac{1}{2}$ 2