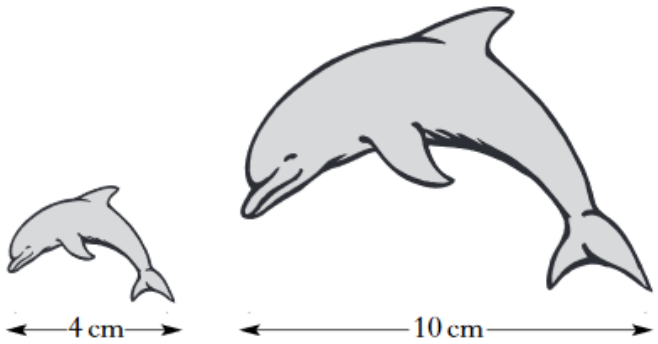
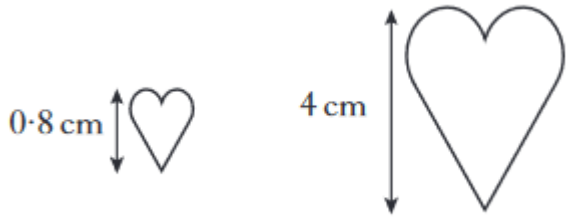
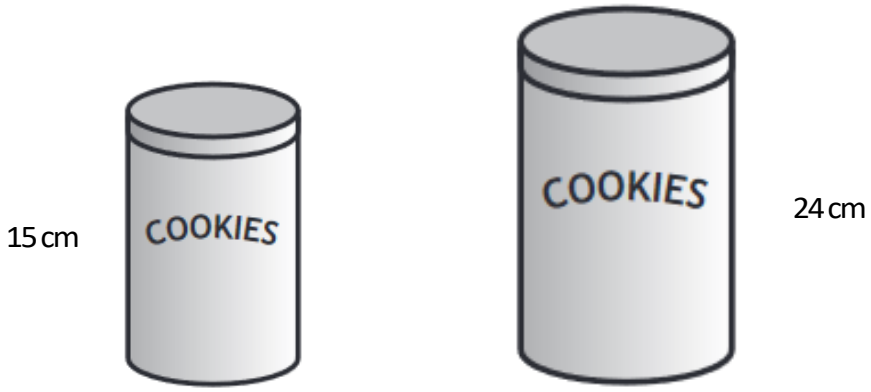
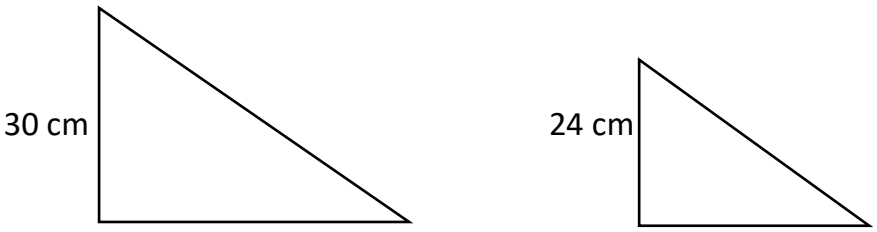
| | Similarity | |
|---|---|---|
| 1 | Two fridge magnets are mathematically similar.<br>  <br><br>One magnet is 4 centimetres long and the other is 10 centimetres long.<br>The area of the smaller magnet is 18 square centimetres.<br>Calculate the area of the larger magnet. | 3 |
| 2 | A café sells cups of coffee in two sizes.<br>The cups are mathematically similar.<br>The smaller cup has a height of 6 cm and a volume of 400 ml.<br>The larger cup has a height of 8 cm.<br>Calculate the volume of the larger cup.<br> <br> | 3 |
| 3 | A necklace is made of beads which are mathematically similar.<br>  <br><br>The height of the smaller bead is 0.8 centimetres, and its area is 0.6 square centimetres.<br>The height of the larger bead is 4 centimetres.<br>Calculate the area of the larger bead. | 3 |

| | | |
|---|---|---|
| 4 | A supermarket sells cylindrical cookie jars which are mathematically similar.<br>  <br><br>The smaller jar has a height of 15 centimetres and a volume of 750 cubic centimetres.<br>The larger jar has a height of 24 centimetres.<br>Calculate the volume of the larger jar. | 3 |
| 5 | Two triangles are mathematically similar<br>  <br><br>Larger triangle has a height of 30 centimetres.<br>The smaller triangle has a height of 24 centimetres.<br>The area of the larger triangle is 625 square centimetres.<br>Calculate the area of the smaller triangle. | 3 |
| | **15 marks** | |

| | Paper A1 – Answers | 15 |
|---|---|---|
| 1 | Mark 1 Find the scale factor for length (LSF) $LSF = \frac{10}{4}\ or\ \frac{5}{2} or\ 2.5$<br>Mark 2 Find the area scale factor (ASF) $ASF = \left(\frac{10}{4}\right)^2$<br>Mark 3 Calculate the area of the larger magnet **and state correct units**<br>$Area = 18 \times \left(\frac{10}{4}\right)^2 = \mathbf{112.5\ cm^2}$<br>2 marks will be given for using volume scale factor $18 \times \left(\frac{10}{4}\right)^3 = 281.25$ | 3 |
| 2 | Mark 1 Find the scale factor for length (LSF) $LSF = \frac{8}{6}\ or\ \frac{4}{3}$<br>Mark 2 Find the volume scale factor (VSF) $VSF = \left(\frac{8}{6}\right)^3$<br>Mark 3 Calculate the volume of the larger cup **and state correct units**<br>$Volume = 400 \times \left(\frac{8}{6}\right)^3 = \mathbf{948\ ml}$<br>2 marks will be given for using area scale factor $400 \times \left(\frac{8}{6}\right)^2 = 711.1$ | 3 |
| 3 | Mark 1 Find the scale factor for length (LSF) $LSF = \frac{4}{0.8}\ or\ 5$<br>Mark 2 Find the area scale factor (ASF) $ASF = (5)^2$<br>Mark 3 Calculate the area of the larger magnet **and state correct units**<br>$Area = 0.6 \times (5)^2 = \mathbf{15\ cm^2}$<br>2 marks will be given for using volume scale factor $0.6 \times (5)^3 = 75$ | 3 |
| 4 | Mark 1 Find the scale factor for length (LSF) $LSF = \frac{24}{15}\ or \frac{8}{5}\ or\ 1.6$<br>Mark 2 Find the volume scale factor (VSF) $VSF = (1.6)^3$<br>Mark 3 Calculate the volume of the larger jar **and state correct units**<br>$Volume = 750 \times (1.6)^3 = \mathbf{3072\ cm^3}$<br>2 marks will be given for using area scale factor $750 \times (1.6)^2 = 1920$ | 3 |
| 5 | Mark 1 Find the scale factor for length (LSF) $LSF = \frac{24}{30}\ or \frac{4}{5}\ or\ 0.8$<br>Mark 2 Find the area scale factor (ASF) $ASF = (0.8)^2$<br>Mark 3 Calculate the area of the smaller triangle **and state correct units**<br>$Area = 625 \times 0.8^2 = \mathbf{400\ cm^2}$<br>2 marks will be given for using volume scale factor $625 \times (0.8)^3 = 320$ | 3 |