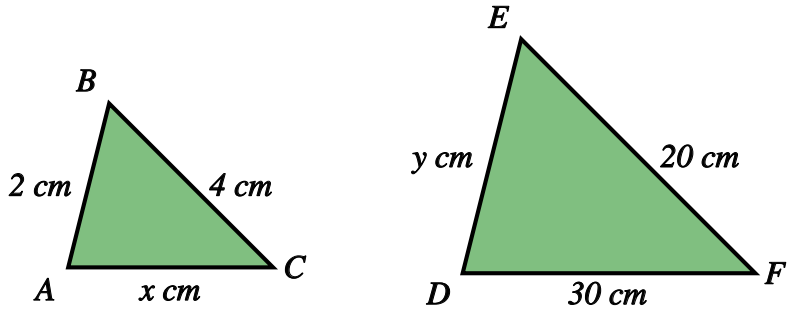
Areas and Volumes of similar shapes

Name:	Class:	Date:

Mark	/ 12	%

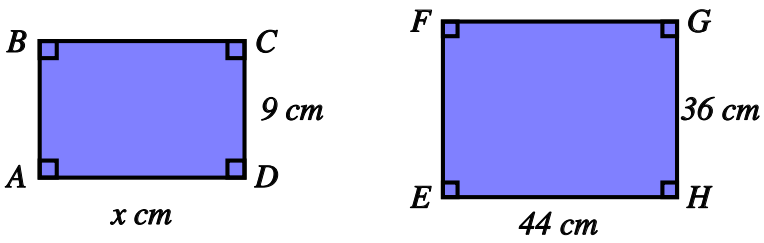
1) Triangle ABC is similar to triangle DEF.



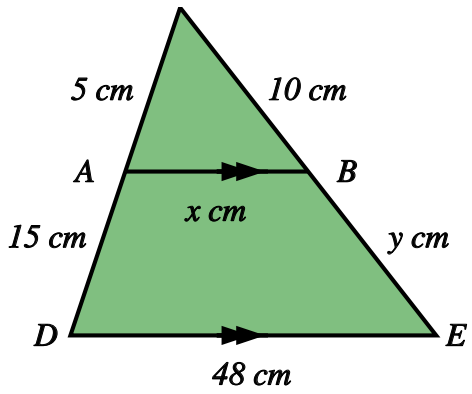
Find a) x b) y

[1]

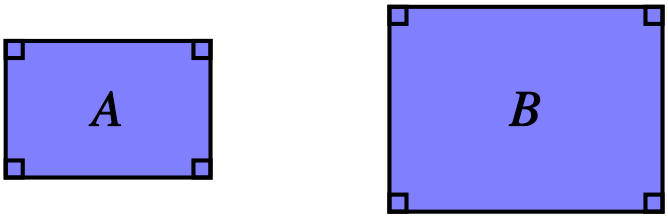
2) Find the missing length, x, in rectangle ABCD shown below [1]



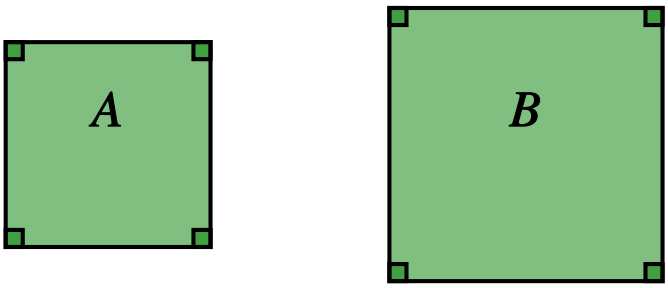
3) Find the missing lengths, x and y, in the picture below [1]



4) The two rectangles, A and B, are mathematically similar. [1]
The lengths in B are twice the lengths in A.
The area of A is 14 cm ^{2}. Find the area of B.



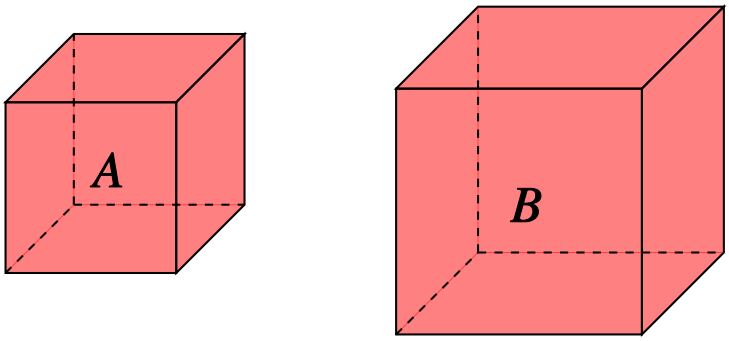
5) The two squares, A and B, are mathematically similar. [1]
The lengths in B are twice the lengths in A.
The area of B is 40 cm ^{2}. Find the area of A.



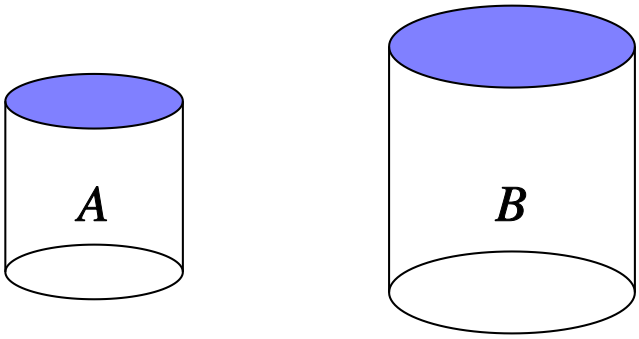
6) The two squares, X and Y, are mathematically similar. [1]
The areas of X and Y are 17 cm ^{2} and 272 cm ^{2}, respectively.
The length of X is 5 cm. Find the corresponding length of Y.

7) The two squares, X and Y, are mathematically similar. [1]
The areas of X and Y are 19 cm ^{2} and 304 cm ^{2}, respectively.
The length of Y is 40 cm. Find the corresponding length of X.

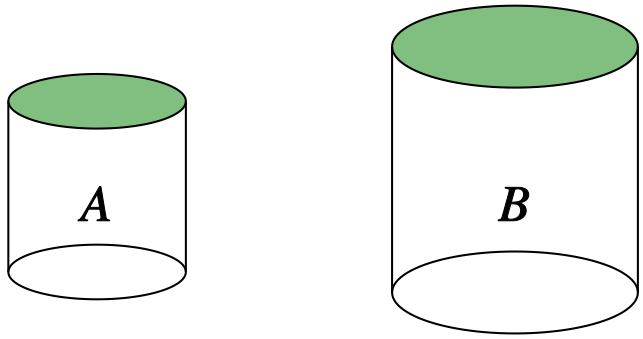
8) Two cubes, A and B, are mathematically similar. [1]
The height of B is triple the corresponding height of A.
The surface area of A is 19 cm ^{2}. Find the surface area of B.



9) Two cylinders, A and B, are mathematically similar. [1]
The height of B is twice the corresponding height of A.
The volume of A is 13 cm ^{3}. Find the volume of B.



10) Two cylinders, A and B, are mathematically similar. [1]
The height of B is twice the corresponding height of A.
The volume of B is 120 cm ^{3}. Find the volume of A.



11) Two spheres, A and B, are mathematically similar. [1]
The volumes of A and B are 11 cm ^{3} and 297 cm ^{3}, respectively.
The radius of A is 6 cm. Find the corresponding radius of B.

12) Two cubes, A and B, are mathematically similar. [1]
The volumes of A and B are 17 cm ^{3} and 136 cm ^{3}, respectively.
The height of B is 18 cm. Find the corresponding height of A.

Solutions for the assessment Areas and Volumes of similar shapes

1) $x = 6$ cm, $y = 10$ cm

2) $x = 11$ cm

3) $x = 12$ cm, $y = 30$ cm

4) Area = 56 cm ^{2}

5) Area = 10 cm ^{2}

6) length of Y = 20 cm

7) length of X = 10 cm

8) Surface area of B = 171 cm ^{2}

9) Volume of B = 104 cm ^{3}

10) Volume of A = 15 cm ^{3}

11) radius of B = 18 cm

12) height of A = 9 cm