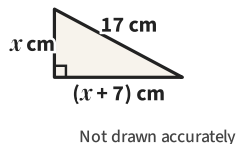


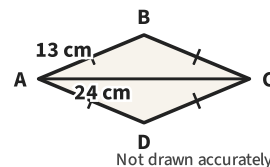
1 Finding the hypotenuse

- a) Find the exact distance between the points $(-2, 3)$ and $(4, -1)$. Give it as a surd in its simplest form.
- b) Find x .



2 Finding a shorter side

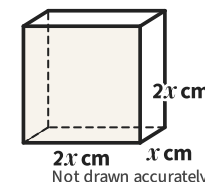
- a) Find the exact area of an equilateral triangle with sides of 10 cm.
- b) ABCD is a rhombus. Find its area.



3 Pythagoras in 3D

A box is a cuboid.

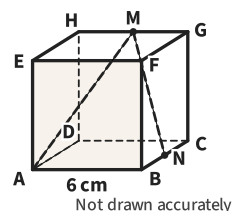
- a) Show that its space diagonal is $3x$ cm long.
- b) A rod 27 cm long fits exactly along the space diagonal. Find the volume of the box.



4 Pythagoras in 3D

ABCDEFGH is a cube with edges of 6 cm. M is the midpoint of GH and N is the midpoint of BC.

- a) Find the length AM.
- b) Find the exact length MN in its simplest form.



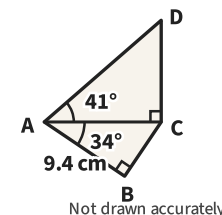
Pythagoras' theorem and trigonometry

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5 Trigonometry: finding a side

Give each answer to 1 decimal place.

- a) Find the length CD.
- b) Find the perimeter of ABCD.



6 Trigonometry: finding a side

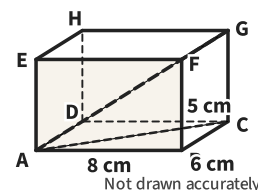
A ship sails 12 km from H on a bearing of 070° . It then sails 9 km on a bearing of 160° to Q. Give each answer to 1 decimal place.

- a) How far east of H is Q?
- b) How far south of H is Q?

7 Trigonometry: finding an angle

ABCDEFGH is a cuboid.

- a) Find the angle between AG and the base ABCD to 1 decimal place.
- b) The height CG is changed so that this angle is 60° . Find the exact new height.



8 Trigonometry: finding an angle

Line A is $y = 2x - 3$ and line B is $y = 6 - x$. Give each answer to 1 decimal place.

- a) Find the acute angle between line A and the x axis.
- b) Find the acute angle between lines A and B.

