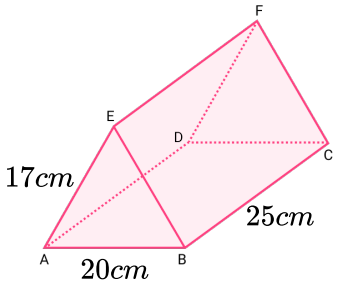
THIRD SPACE LEARNING

GCSE Exam Questions

3D Pythagoras' Theorem | Geometry & Measure

GCSE Exam Questions: 3D Pythagoras' Theorem

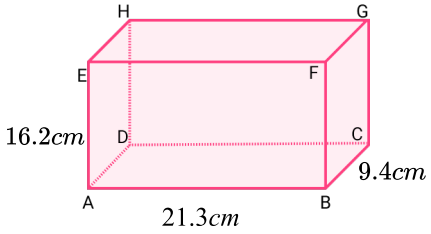
1) Rectangle *ABCD* is the horizontal base of a triangular prism *ABCDEF*.



Work out the volume of the prism. Give your answer correct to 3 significant figures

(5 marks)

2) The diagram shows a box in the shape of a cuboid *ABCDEFGH*.



A string runs diagonally across the box from *C* to *E*.

Calculate the length of the string *CE*.

Give your answer correct to 3 significant figures.

(3 marks)

3)

Properties of a Cone	
Curved Surface Area = πrl	Volume = $\frac{1}{3}\pi r^2 h$

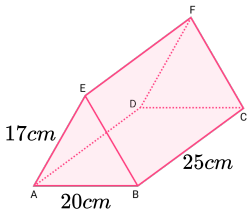
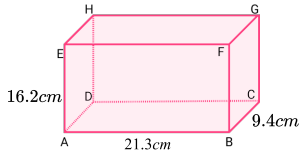
A cone has a diameter of $18cm$. The volume of the cone is $2000cm^3$.

Find the curved surface area of the cone.

Give your answer correct to 3 significant figures.

(5 marks)

GCSE Exam Questions: 3D Pythagoras' Theorem Answers

	Question	Answer	Marks
1)	Rectangle *ABCD* is the horizontal base of a triangular prism *ABCDEF*.  Work out the volume of the prism. Give your answer correct to 3 significant figures.	$h^2 = 17^2 - 10^2$ $h = \sqrt{17^2 - 10^2} = 3\sqrt{21}$ $Area = \frac{1}{2} \times 20 \times 3\sqrt{21} = 30\sqrt{21}$ $Volume = 30\sqrt{21} \times 25 = 3436.93\ldots$ $Volume = 3440cm^3$	**(1)** **(1)** **(1)** **(1)** **(1)**
2)	The diagram shows a box in the shape of a cuboid *ABCDEFGH*.  A string runs diagonally across the box from *C* to *E*. Calculate the length of the string *CE*. Give your answer correct to 3 significant figures.	$AC = \sqrt{21.3^2 + 9.4^2} = 23.28196\ldots$ $CE = \sqrt{23.28196\ldots^2 + 16.2^2} = 28.36353\ldots$ $CE = 28.4cm$	**(1)** **(1)** **(1)**
3)	Here is a cone. Its diameter in 18cm. The volume of the cone is 2000cm3. Find the curved surface area of the cone. Give your answer correct to 3 significant figures. The formula for the curved surface area of a cone is: Curved Surface Area = πrl The formula for the volume of a cone is: $Volume = \frac{1}{3}\pi r^2 h$	$\frac{1}{3} \times \pi \times 9^2 \times h = 2000$ $h = \frac{3 \times 2000}{9^2 \times \pi} = 23.57851009\ldots$ $l = \sqrt{23.57851009\ldots^2 + 9^2} = 25.237\ldots$ $CSA = \pi \times 9 \times 25.237\ldots = 713.581\ldots$ $CSA = 713.581\ldots = 714cm^2$	**(1)** **(1)** **(1)** **(1)** **(1)**

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