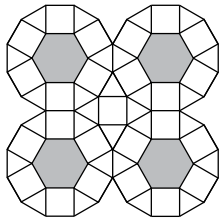
Angles in Polygons £2

Using angle properties explain why an equilateral triangle, squares and a regular hexagon tessellate as shown in the diagram.

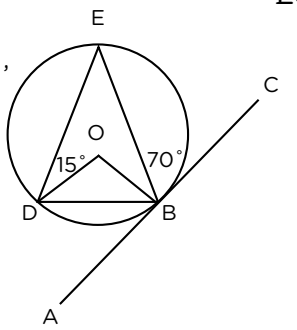


Surface Area of a Cylinder £2

Show that the surface area of a cylinder with radius r, and height h, can be written as $2\pi r(r + h)$.

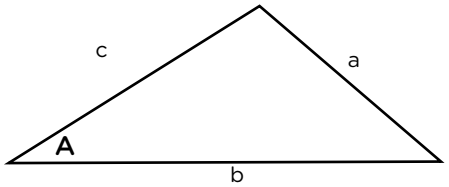
Circle Theorems £3

If the angle CBE = 70° and the angle ODE = 15°, explain why the angle BED=35°



Area of a Triangle £3

Prove that the area of the triangle is given by $\frac{1}{2}$ bcSinA.



Volume Ratios £4

Show that the volumes of a cone and sphere of the same height and radius are in the ratio 1 : 2.

Drinks

These mixed questions will make a great accompaniment to your meal.

Bearings £2

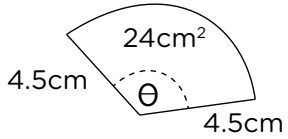
The aeroplane is at a bearing of 242° from the airport. Find the bearing of the airport from the aeroplane.

Loci £3

Two mobile phone company masts are 50 miles apart. The Me-Mobile and O4 masts transmits signals for their networks over a distance of 30 miles and 35 miles respectively. Using a scale of 1cm to 10 miles shade the area that both networks cover.

Angle of a Sector £3

A sector with a radius of 4.5cm has an area of 24cm².
Find the angle θ ,of the sector to the nearest degree.

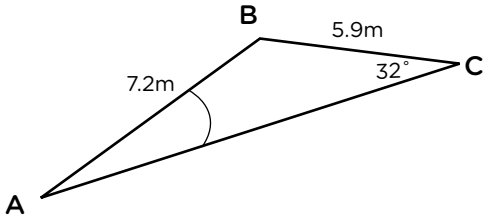


Areas of Similar Shapes £1

Sanjana is designing her bedroom. She draws a floorplan using a scale 1:50. The area of her bedroom floor on the floorplan is 56cm².
Find the actual area of her bedroom floor.

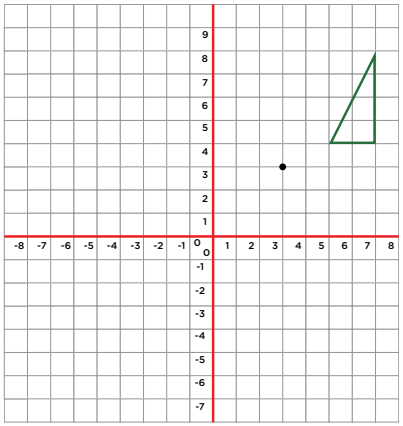
Angles in Triangles £3

If the triangle ABC has sides AB = 7.2m and BC= 5.9m and angle ACB= 32°, find the angle BAC



Enlargement £2

Draw an enlargement of the triangle using the centre (3,3) and scale factor -2.



eduqas

Maths Take-Away Menu

Geometry & Measures

GCSE Mathematics
Higher Tier

Using this Take-Away Menu

For each sitting you will need to choose a Starter, Main Course, Dessert & Drink.

The prices vary for each course.

This symbol indicates that a calculator may be used when answering the question.

Remember to ensure that you show your workings clearly.

If you have any questions don't forget to ask your waiter (that's your teacher).

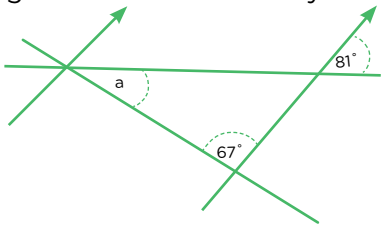
Enjoy your meal!

Starters

These are quick questions designed to warm you up and get your appetite for maths going!

Parallel Lines £3

Find the angle a. Give reasons for your answer.

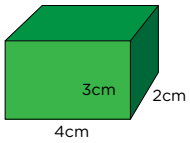


Perpendicular Bisector £2

Use a ruler and compass to draw the perpendicular bisector of a line.

Nets £1

Accurately draw the net of the cuboid

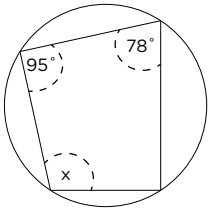


Trigonometric Values £1

Find the value of Sin 30°

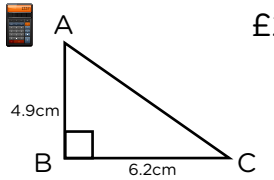
Angles in a Circle £1

Find the angle x. Give a reason for your answer.



Pythagoras' Theorem £2

Find the length of AC correct to 1 d.p.



Main Course

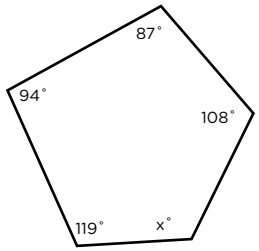
Your main dish is geometry & measures based and is served with 'portions' from other areas of Maths or real life applications. These problem solving questions may take a bit more time to digest.

I am Sailing £4

A boat is at point A 5.2km north of the harbour. A second boat is at point B 3.6km to the west of the harbour.
Find the bearing of the ship at point A from the ship at point B and the distance between both ships.

Angles in a Pentagon £4

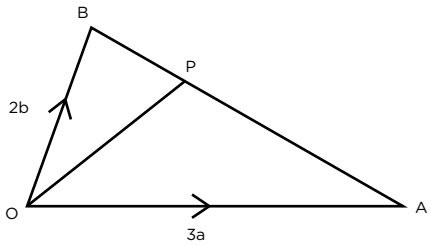
All of the angles in the pentagon are measured to the nearest degree.



Find the difference between the minimum and maximum possible values for the angle x.

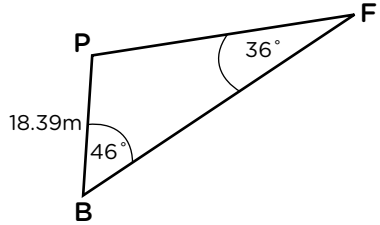
Vectors £3

The triangle OAB has its side AB divided into the ratio 3:1 by the point P. If the $\overrightarrow{OA} = 3a$ and $\overrightarrow{OB} = 2b$ find and expression for $\overrightarrow{OP}$.



Baseball £3

In a game of baseball the pitcher (P) throws the ball to the batter (B) from a distance of 18.39m. The batter hits the ball at an angle of 46° in line with the pitcher. A fielder (F) catches the ball turns 36° and throws it back to the pitcher in a straight line. How far did the batter hit the ball before it was caught by the fielder?



Filling the Sink £4

A sink in the form of a hemisphere is 30cm deep. It is filled with water at a rate of 240 litres an hour. To the nearest minute how long will it take to fill the sink?

Anyone for Tea? £4

A cylindrical kettle with diameter 18cm and height 34cm is 90% full with water. How many full cups of tea can be made if the water is poured from the kettle into cylindrical mugs with radius 5cm and up to a height of 12cm? How much water will be left in the kettle?

Dessert

"The proof of the pudding is in the eating". These questions are designed to test your understanding of key geometry concepts.

Trigonometry £2

For triangle ABC Sin $\theta = {}^{8}/_{17}$. Show that Cos $\theta = {}^{15}/_{17}$.