

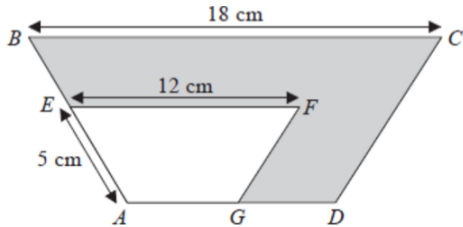
Calculator
B+Power
Hour 1

Paper clips are sold in small boxes and in large boxes. There is a total of 1115 paper clips in 4 small boxes and 5 large boxes. There is a total of 530 paper clips in 3 small boxes and 2 large boxes.

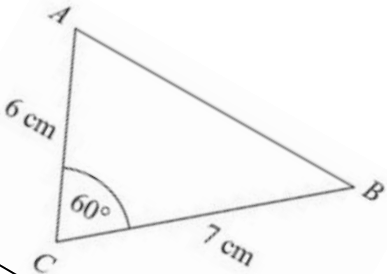
Work out the number of paper clips in each small box & x large

Charlie invests £1200 at 3.5% per annum compound interest.
Work out the value of Charlie's investment after 3 years.

ABCD and AEGF are mathematically similar trapeziums. (a) Work out the length of AB. Trapezium AEGF has an area of 36 cm². (b) Work out the area of the shaded region.

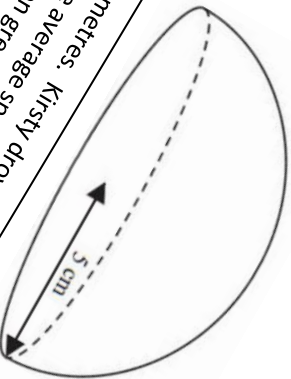


- (a) Work out the area of triangle ABC. Give your answer correct to 3 significant figures.
(b) Work out the length of the side AB. Give your answer correct to 3 significant figures.



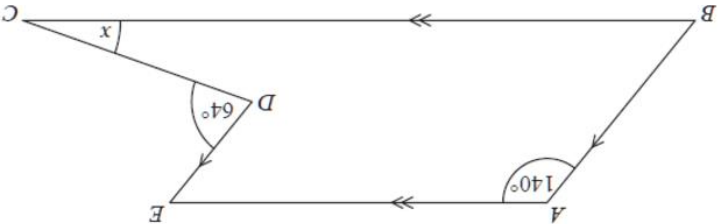
Solve $\frac{h+7}{3} + \frac{2h-1}{2} = \frac{15}{6}$
Prove algebraically that the difference between the squares of any two consecutive integers is equal to the sum of these two integers.

Find the **total** surface area of the solid hemisphere.
Give your answer correct to 3 significant figures.



A road is 4530 m long, correct to the nearest 10 metres. Kirsty drove along the road in 205 seconds, correct to the nearest 5 seconds. The average speed limit for the road is 80 km/h. Could Kirsty's average speed have been greater than 80 km/h?

Work out the size of the angle marked x.
You must give reasons for your answer.



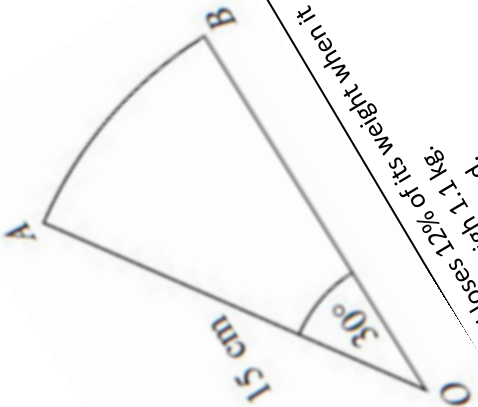
The diagram shows part of the curve with equation $y = f(x)$.

- (a) Write down the coordinates of the maximum point of the curve with equation $y = f(x)$
(i) $y = f(x + 3)$ (ii) $y = 2f(x)$ (iii) $y = f(3x)$

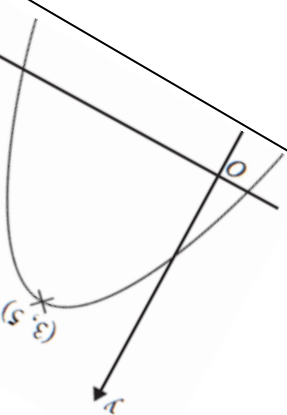
The curve with equation $y = f(x)$ is transformed to give the curve with equation $y = f(x) - 4$

(b) Describe the transformation.

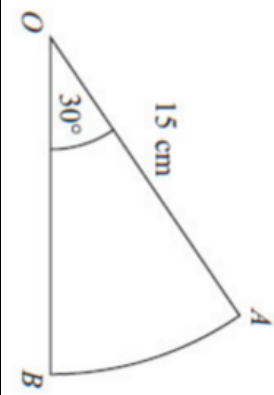
Calculate the area of sector OAB.
Give your answer correct to 3 significant figures



Claire is making a loaf of bread. A loaf of bread loses 12% of its weight when it is baked. Claire wants the baked loaf of bread to weigh 1.1 kg.
Work out the weight of the loaf of bread before it is baked.

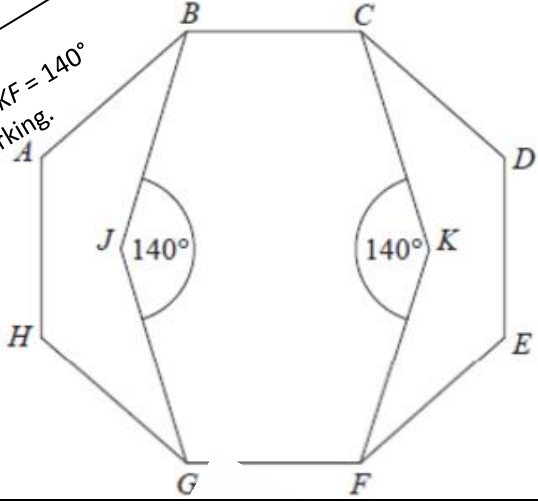
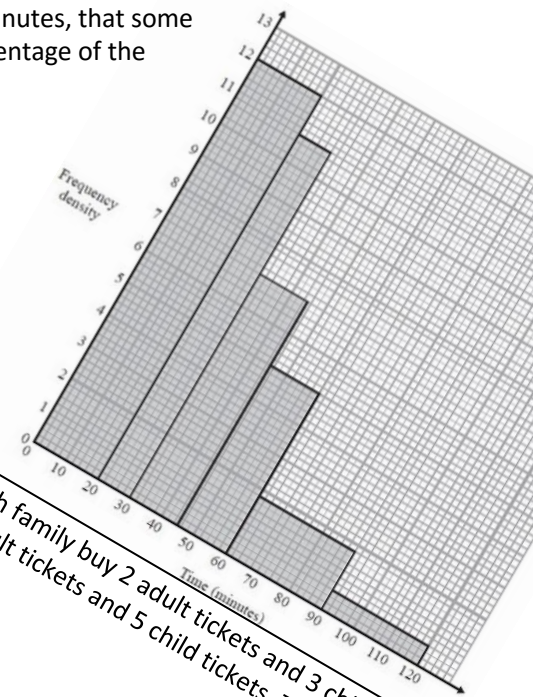


Calculator
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Hour 2



The Singh family and the Peterson family go to the cinema. The Singh family buy 2 adult tickets and 3 child tickets. They pay £28.20 for the tickets. The Peterson family buy 3 adult tickets and 5 child tickets. They pay £44.75 for the tickets. Find the cost of each adult ticket and each child ticket.

The histogram shows information about the times, in minutes, that some passengers had to wait at an airport. Work out the percentage of the passengers who had to wait for more than one hour.

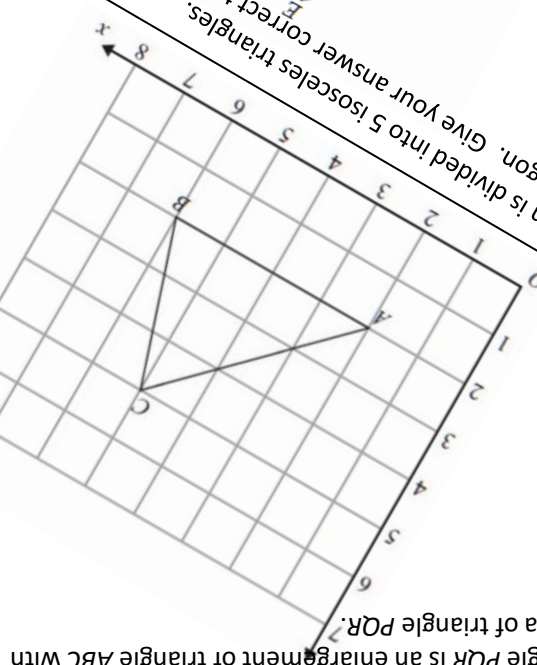
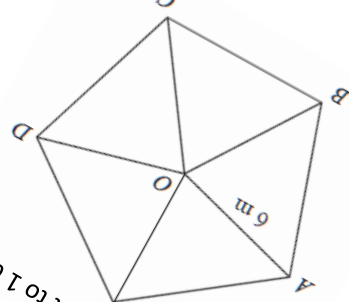


Danny bought a car for £10 000. The value of the car depreciated by 20% in the first year. Then the value of the car depreciated by 10% in the second year. Work out the value of Danny's car at the end of two years.

Jacob answered 80% of the questions in a test correctly. He answered 32 of the questions correctly. Work out the total number of questions in the test.

(a) Simplify fully $\frac{x+2}{4} + \frac{x-2}{x-2} + \frac{3x^2-5x+3}{x^2+3x-4}$ as a single fraction in its simplest form.

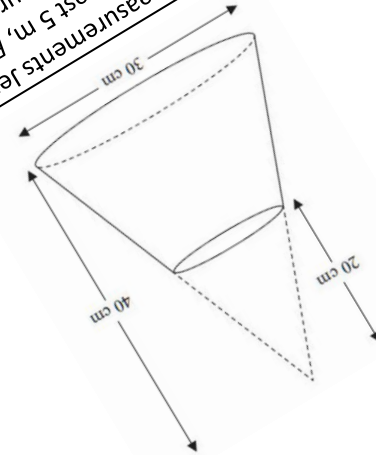
The diagram shows a regular pentagon ABCDE. The pentagon is divided into 5 isosceles triangles. Give your answer correct to 1 decimal place.



Triangle ABC is drawn on a centimetre grid. Triangle PQR is an enlargement of triangle ABC with scale factor $\frac{1}{2}$ and centre (0, 0). Work out the area of triangle PQR.

Prove algebraically that $(2n + 1)^2 - (2n + 1)$ is an even number for all positive integer values of n .

A frustrum is made by removing a small cone from a similar large cone. Work out the volume of the frustrum. Give your answer correct to 3 significant figures.



Jerry wants to cover a triangular field, ABC, with fertiliser. Here are the measurements Jerry makes. Angle ABC = 50° correct to the nearest degree, BA = 225 m correct to the nearest 5 m, BC = 175 m correct to the nearest 5 m. Work out the upper bound for the area of the field. You must show your working.

