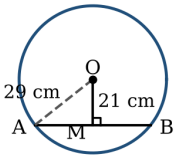
Day 311	S Tier 10-a-day

1 Work out the value of $3p - q^3$
when $p = -4$, $q = 2$ and $r = -1$.

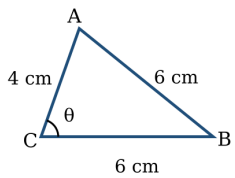
2 AB is a chord of a circle, centre O. M is the midpoint of AB. (Calculator)
(a) Work out the length of the chord AB.
(b) Work out angle AOB, to 1 decimal place.
The diagram is not drawn accurately.



3 The 4-digit number 1k58 is a multiple of 6.
k is a single digit.
Find all the possible values of k.

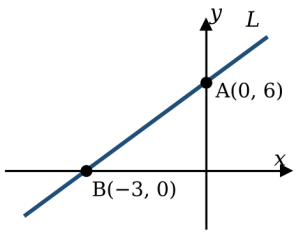
4 A wooden block in the shape of a cuboid weighs 990 N.
Its smallest face has area 100 cm^2. Its largest face has area 3,000 cm^2.
Pressure = force ÷ area
Work out (a) the greatest pressure and (b) the least pressure the wooden block can exert on the ground, in N/m^2.

5 The diagram shows triangle ABC. (Calculator)
(a) Work out angle ACB, marked θ, to 1 decimal place.
(b) Work out the area of triangle ABC to 3 significant figures.
The diagram is not drawn accurately.



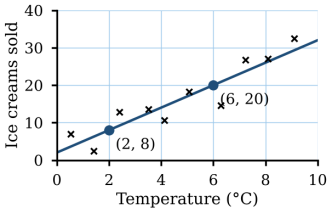
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6 The diagram shows the straight line L, which passes through the points A and B.
The line M is perpendicular to L and passes through B.
Find the equation of M in the form y = mx + c.



7 A and B are two events.
P(A) = 0.3, P(B) = 0.4 and P(A or B) = 0.5
(a) Work out P(A and B).
(b) Are A and B independent? You must show your working.

8 The scatter graph shows temperature (x) and ice creams sold (y).
The line of best fit passes through (2, 8) and (6, 20).
(a) Find its equation in the form y = mx + c.
(b) Explain what its gradient tells you.



9 The price of a car is decreased by x%.
The new price is then increased by x%.
The final price is 1% less than the original price.
Work out the value of x.

10 Triangle ABC has AB = 20 cm and BC = 4 cm.
The area of triangle ABC is 20 cm^2.
Angle ABC is obtuse.
Work out the size of angle ABC.
Do not use a calculator.