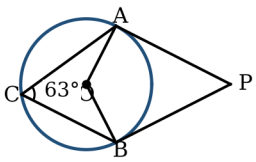
Day 18	S Tier 10-a-day

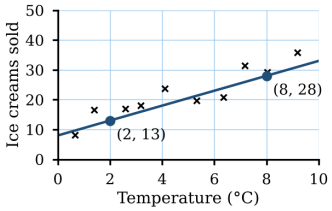
1 The ratio of juniors to seniors in a school is 1 : 2.
25% of the juniors and 55% of the seniors play a sport.
What percentage of all of these students play a sport?

2 PA and PB are tangents to a circle, centre O. C is a point on the circle. Angle ACB = 63°.
(a) Work out the size of angle AOB.
(b) Work out the size of angle APB.
The diagram is not drawn accurately.

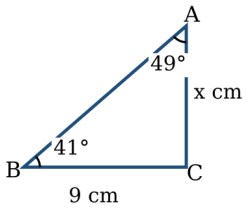


3 Simplify fully $\frac{4\sqrt{112}}{2\sqrt{7}}$

4 The scatter graph shows temperature (x) and ice creams sold (y).
The equation of the line of best fit is y = 2.5x + 8.
(a) Estimate y when x = 3.
(b) Explain why an estimate of y when x = 15 may be unreliable.



5 Zip Taxis has a fixed charge of £1.50 plus £4 per mile.
Go Cabs has a fixed charge of £16.50 plus £1.50 per mile.
(a) Work out the number of miles for which the two costs are the same.
(b) Which is cheaper for 13 miles, and by how much?

Day 18	S Tier 10-a-day
6 The diagram shows triangle ABC. (Calculator) Work out the length of AC. Give your answer correct to 1 decimal place. The diagram is not drawn accurately.  	
7 A red light flashes every 7 minutes. A blue light flashes every 10 minutes. A green light flashes every 14 minutes. They all flash together at 7:00 am. How many times do they all flash together between 7:00 am and 3:00 pm, including both 7:00 am and 3:00 pm if they do?	
8 Kira and Nadia share some money in the ratio 7 : 1. Kira gives Nadia £55. The ratio of their money is now 1 : 3. How much money do they have altogether?	
9 Prove algebraically that the sum of the cubes of any three consecutive integers is a multiple of 9.	
10 A sector of a circle has radius 5 cm and angle 120°. (a) Work out the length of the arc of the sector. (b) Work out the area of the sector. Give each answer in terms of π.	