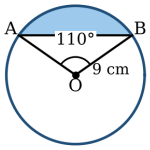
Day 298	S Tier 10-a-day
1 12 painters can paint a hall in 20 days. After 2 days, 4 of the painters leave. The rest carry on working at the same rate. How many more days does it take to finish?	
2 Factorise $9x^2 - 27x + 20$	
3 A bag contains counters. $\frac{1}{3}$ of the counters are red and $\frac{3}{8}$ of the counters are blue. The rest of the counters, 28 of them, are green. How many counters are in the bag?	
4 A solid cylinder of radius 12 cm and height 13 cm is melted down. The metal is used to make identical solid spheres of radius 3 cm. Work out the number of spheres that can be made. The volume of a sphere of radius r is $\frac{4}{3}\pi r^3$.	
5 The side length of a square is increased by 25%. Work out the percentage change in the area of the square.	

Day 298	S Tier 10-a-day

6 The ratio of men to women people at a meeting is 8 : 9.
Then $\frac{3}{4}$ of the men and $\frac{1}{6}$ of the women are taken out.
Work out the ratio of men to women now.

7 The circle has centre O and radius 9 cm. A and B are points on the circle and angle AOB = 110°. (Calculator)
Work out the area of the shaded segment. Give your answer correct to 3 significant figures.
The diagram is not drawn accurately.



8 A circle has equation $(x - 4)^2 + (y + 3)^2 = 50$.
The point P(−1, −8) lies on the circle.
Find an equation of the tangent to the circle at P.
Give your answer in the form ax + by = c, where a, b and c are integers.

9 Show that $\sqrt{14 + 6\sqrt{5}} = 3 + \sqrt{5}$

10 Show that the line $y = -3x + 10$ is a tangent to the circle $x^2 + y^2 = 10$.
Find the coordinates of the point where the line touches the circle.