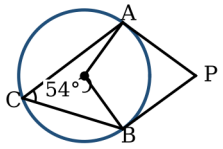
Day 19	S Tier 10-a-day
1 Write $\sqrt{252} + \sqrt{28} - \sqrt{175} - \sqrt{7}$ in the form $a\sqrt{7}$ where a is an integer.	
2 Solve $2 \cos x = 1$ for $0° \leq x \leq 360°$. Do not use a calculator.	
3 Solve $2x^2 < 8x$	
4 PA and PB are tangents to a circle, centre O. C is a point on the circle. Angle ACB = 54°. (a) Work out the size of angle AOB. (b) Work out the size of angle APB. The diagram is not drawn accurately. 	
5 The ratio of men to women people at a meeting is 3 : 5. Then $\frac{1}{3}$ of the men and $\frac{1}{5}$ of the women are taken out. Work out the ratio of men to women now.	

Day 19	S Tier 10-a-day

6 The value of a house is decreased by 12% in one year.
The next year its value is decreased by 30%.
It is now worth £135,520.
Work out the value of the house before the first change.

7 The lengths of the sides of a right-angled triangle are (x + 1) cm, (x + 2) cm and (x + 3) cm.
The longest side is (x + 3) cm.
(a) Show that $x^2 - 4 = 0$
(b) Hence work out the area of the triangle.

8 x : y = 9 : 4
Work out the ratio (1x − 1y) : (2x + 4y)
Give your answer in its simplest form.

9 The line y = −2x + k is a tangent to the curve y = $2x^2$ + x − 1.
Find the value of k.

10 OAB is a triangle. OA = **a** and OB = **b**.
M is on OA with OM : MA = 2 : 3. N is on OB with ON : NB = 3 : 2. AN and BM intersect at X.
(a) Find BM in terms of **a** and **b**.
(b) Find OX in terms of **a** and **b**.
The diagram is not drawn accurately.

