Day 29	S Tier 10-a-day
1 Each interior angle of a regular polygon is 17 times the size of each exterior angle. Work out the number of sides of the polygon.	
2 Solve $\frac{x-1}{5} - \frac{x-4}{3} = 1$	
3 The ratio of boys to girls in a school is 3 : 2. 15% of the boys and 75% of the girls walk to school. What percentage of all of these students walk to school?	
4 Sofia invests £8,000. The account pays compound interest of 5% a year for the first 2 years, then 3.5% a year for the next 2 years. Work out the total amount after 4 years, to the nearest penny. (Calculator)	
5 Triangle ABC has AB = 12 cm and BC = 8 cm. The area of triangle ABC is 24 cm^2. Angle ABC is obtuse. Work out the size of angle ABC. Do not use a calculator.	

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6 A and B are two events. P(A) = 0.4, P(B) = 0.4 and P(A or B) = 0.55 (a) Work out P(A and B). (b) Are A and B independent? You must show your working.	
7 Solve $8^{2x-2} = 4^{x-1}$	
8 OA = **a** and OB = **b**. OP = 2**a** + **b**, OQ = 5**a** − 8**b** and OR = 7**a** − 14**b**. (a) Show that P, Q and R lie on a straight line. (b) Work out the ratio PQ : QR in its simplest form.	
9 A is the point (2, 1) and B is the point (6, −1). Find an equation of the perpendicular bisector of AB. Give your answer in the form y = mx + c.	
10 A rectangle has area $(7 + 7\sqrt{2})$ cm^2 and length $(3 + \sqrt{2})$ cm. Find the width of the rectangle. Give your answer in the form $a + b\sqrt{2}$	