Day 283	A Tier 10-a-day
1 A point P moves so that it is always 6 cm from a fixed point M. Describe the locus of P.	
2 A cyclist rides 136 km at 16 km/h. Work out the time taken. Give your answer in hours and minutes.	
3 A rectangle has length (3x + 5) cm and width (x + 1) cm. The perimeter of the rectangle is 44 cm. (a) Work out the value of x. (b) Work out the length of the rectangle.	
4 On a stage, a red light flashes every 8 seconds. A green light flashes every 14 seconds. They flash together at the start. After how many seconds will they next flash together?	
5 p : q = 5 : 8 q : r = 1 : 4 (a) Work out the ratio p : q : r (b) p, q and r add up to 315. Work out the value of r.	

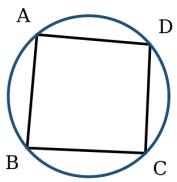
Day 283 **A Tier 10-a-day**

6 n is the smallest positive integer such that 175 × n is a square number.
Find the value of n.

7 Simplify fully
$\frac{x^2 + 3x - 28}{x^2 - 9x + 20}$

8 Show that $\frac{\sqrt{175} + \sqrt{112}}{\sqrt{7}}$ is an integer, and find its value.

9 A, B, C and D are points on a circle.
Angle B = (2x + 15)° and angle D = (4x − 3)°.
(a) Work out the value of x.
(b) Work out the size of angle B.
The diagram is not drawn accurately.



10 The stem and leaf diagram shows the ages of 11 people.
Key: 1 | 1 represents 11 years
(a) Work out the median age.
(b) Work out the interquartile range.

Stem	Leaf
1	1 4 6
2	3 5 7
3	2
4	0 2 6 9