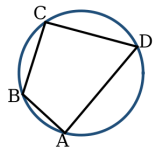
Day 207	S Tier 10-a-day
1 Factorise $12x^2 + 17x - 7$	
2 A, B, C and D are points on a circle. Angle DAB = (x + 25)°, angle BCD = (3x + 47)° and angle ABC = (3x)°. (a) Work out the value of x. (b) Work out the size of angle ADC. The diagram is not drawn accurately. 	
3 A church bell rings every 4 minutes. Another bell rings every 8 minutes. A third bell rings every 24 minutes. They all ring together at 6:00 am. (a) At what time do they next ring together?	
4 Simplify fully $\frac{5x^2 - 180}{x^2 - x - 30}$	
5 A stone block in the shape of a cuboid weighs 690 N. Its smallest face has area 400 cm^2. Its largest face has area 1,500 cm^2. Pressure = force ÷ area Work out (a) the greatest pressure and (b) the least pressure the stone block can exert on the ground, in N/m^2.	

Day 207	S Tier 10-a-day
6 A trader buys a watch and adds a 25% mark-up to get the selling price. In a sale the selling price is reduced by 30% to £131.25. Work out how much the shop paid for a watch.	
7 A radioactive sample has a mass of 480 g. Its mass halves every 3 hours. (a) Work out the mass after 12 hours. (b) After how many hours will the mass first be less than 25 g?	
8 A is the point $(-1, -2)$ and B is the point $(-7, -4)$. Find an equation of the perpendicular bisector of AB. Give your answer in the form ax + by = c, where a, b and c are integers.	
9 Given that $(a + \sqrt{14})(b + \sqrt{14}) = 26 + 8\sqrt{14}$, where a and b are positive integers with $a < b$, find the values of a and b.	
10 ABCD is a rectangle with AB = 9 cm and AD = 9 cm. A point P inside the rectangle is such that $AP \leq 8$ cm and P is nearer to AB than to AD. Work out the area of the region in which P can lie. Give your answer in terms of π.	