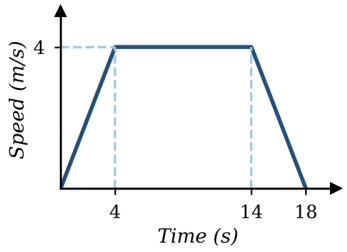
Day 320	S Tier 10-a-day
1 A red light flashes every 5 minutes. A blue light flashes every 10 minutes. A green light flashes every 15 minutes. They all flash together at 8:00 am. How many times do they all flash together between 8:00 am and 3:00 pm, including both 8:00 am and 3:00 pm if they do?	
2 The ratio of men to women in a school is 5 : 1. 65% of the men and 50% of the women own a car. What percentage of all of these students own a car?	
3 The 4-digit number 30k0 is a multiple of 6. k is a single digit. Find all the possible values of k.	
4 The point P(−6, 5) is rotated 90° anticlockwise about the origin. The image is then reflected in the line y = x. (a) Write down the coordinates of the final image of P. (b) Describe fully the single transformation that is equivalent to these two transformations.	
5 Simplify fully $\frac{2x^{\frac{4}{3}} \times 4x^{\frac{3}{4}}}{4x^{\frac{3}{2}}}$	

Day 320	S Tier 10-a-day
6 A sector of a circle has angle 216° and area 15π cm^2. (a) Work out the radius of the circle. (b) Work out the length of the arc of the sector. Give your answer to (b) in terms of π.	
7 Container A holds juice and water in the ratio 3 : 1. Container B holds juice and water in the ratio 3 : 3. 12 litres from container A is mixed with some of container B. The ratio of juice to water in the mixture is 3 : 2. Work out how many litres were taken from container B.	
8 The ratio of red to blue marbles in a jar is 3 : 8. Then $\frac{2}{3}$ of the red and $\frac{3}{4}$ of the blue are taken out. Work out the ratio of red to blue now.	
9 The graph shows the speed of a train between two stations. (a) Work out the acceleration in the first 4 seconds. (b) Work out the total distance. 	
10 The diagram shows the graph of y = a sin x + c. (a) Write down the value of a and the value of c. (b) Work out the value of y when x = 330°. 