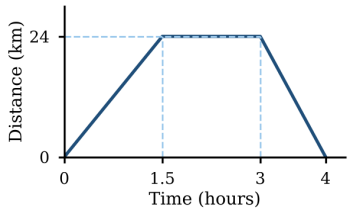
Day 249	S Tier 10-a-day
1 Triangle ABC has AB = 20 cm and BC = 15 cm. The area of triangle ABC is $75\sqrt{3}$ cm^2. Angle ABC is obtuse. Work out the size of angle ABC. Do not use a calculator.	
2 Solve $\frac{x-1}{3} + \frac{x+1}{2} = -4$	
3 Work out the exact value of sin 60° × sin 45° Give your answer in its simplest form, as a fraction or surd. Do not use a calculator.	
4 FitLife has a joining fee of £2.50 plus £4.50 per month. GymNow has a joining fee of £9.50 plus £4 per month. (a) Work out the number of months for which the two costs are the same. (b) Which is cheaper for 19 months, and by how much?	
5 The graph shows Priya's cycle ride to a café and back. (a) Work out Priya's speed on the way back. (b) Work out Priya's average speed for the whole ride, including the stop. 	

Day 249	S Tier 10-a-day
6 In one country, income tax is worked out like this: The first £12,570 of income is not taxed. The next £20,000 is taxed at 20%. All income above that is taxed at 45%. Lena pays £14,125 in income tax in a year. Work out Lena's income for the year.	
7 y is directly proportional to the cube of x. When x = 3, y = 54. (a) Find a formula for y in terms of x. (b) Work out the value of y when x = 5.	
8 A rectangle has area $(2\sqrt{5})$ cm^2 and length $(4 + 2\sqrt{5})$ cm. Find the width of the rectangle. Give your answer in the form $a + b\sqrt{5}$	
9 A circle has equation $(x - 2)^2 + (y - 4)^2 = 100$. The point P(10, 10) lies on the circle. Find an equation of the tangent to the circle at P. Give your answer in the form ax + by = c, where a, b and c are integers.	
10 The 4-digit number 16k0 is a multiple of 6. k is a single digit. Find all the possible values of k.	