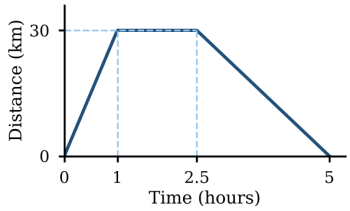
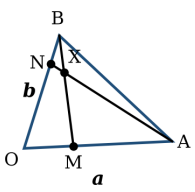
| Day 119 | S Tier 10-a-day |
|---|---|
| **1** Work out $(4.2 \times 10^4) \times (1.5 \times 10^{-7})$<br>Give your answer in standard form. | |
| **2** Factorise fully $2x^3 - 72x$ | |
| **3** Given that $\frac{16^4 \times 4^3}{8} = 2^n$,<br>find the value of n. | |
| **4** The graph shows Liam's cycle ride to a café and back.<br>(a) Work out Liam's speed on the way back.<br>(b) Work out Liam's average speed for the whole ride, including the stop.<br> | |
| **5** A rectangle has length (2x + 6) cm and width (x + 5) cm.<br>The area of the rectangle is 160 $cm^2$.<br>(a) Show that $2x^2 + 16x - 130 = 0$<br>(b) Work out the perimeter of the rectangle. | |

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|---|---|
| **6** The point P(−2, −6) is reflected in the line y = −x.<br>The image is then reflected in the x-axis.<br>(a) Write down the coordinates of the final image of P.<br>(b) Describe fully the single transformation that is equivalent to these two transformations. | |
| **7** A bag contains 3 orange cubes, 2 purple cubes and 3 pink cubes.<br>Two cubes are taken at random without replacement.<br>Work out the probability that (a) at least one is orange, (b) both are the same colour. | |
| **8** $N = 2^4 \times 3^2 \times 7^2$<br>How many of the factors of N are even numbers? | |
| **9** In a fruit box, the ratio of the number of apples to the number of pears is 2 : 5.<br>Then 14 more apples are added and 13 more pears are added.<br>The ratio is now 2 : 3.<br>How many apples were there at the start? | |
| **10** OAB is a triangle. OA = **a** and OB = **b**.<br>M is on OA with OM : MA = 1 : 2. N is on OB with ON : NB = 3 : 1. AN and BM intersect at X.<br>(a) Find BM in terms of **a** and **b**.<br>(b) Find OX in terms of **a** and **b**.<br>The diagram is not drawn accurately.<br> | |