Day 182	A Tier 10-a-day
1 AB is a straight line. A point S moves so that it is always 7 cm from the line AB, on one side of it. Describe the locus of S.	
2 Ali buys a painting for £200. He sells it for £168. Work out his percentage loss.	
3 Work out $(9 \times 10^2) \div (3 \times 10^{-3})$ Give your answer in standard form.	
4 The price of a season ticket increases by 25%. The new price is £100. Work out the price before the increase.	
5 Show that $\frac{\sqrt{175} - \sqrt{63}}{\sqrt{7}}$ is an integer, and find its value.	

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6 Here are the first five terms of a quadratic sequence. 0, −3, −4, −3, 0 (a) Find an expression for the nth term. (b) Work out the 15th term.	
7 p : q = 7 : 3 q : r = 2 : 5 (a) Work out the ratio p : q : r (b) p, q and r add up to 280. Work out the value of r.	
8 The length and width of a rectangular poster are 6.1 cm and 6.3 cm. Each measurement is correct to 1 decimal place. Work out the lower bound for the area.	
9 $\frac{2}{5}$ of the books in a library are fiction. There are 56 fiction books. Work out the total number of books in the library.	
10 y is inversely proportional to x. When x = 2, y = 6. (a) Find a formula for y in terms of x. (b) Work out the value of y when x = 4.	