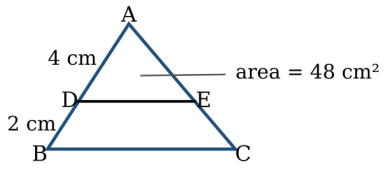
Day 126	S Tier 10-a-day
1 Solve $7 \tan x - 6 = 0$ for $0° \leq x \leq 360°$. (Calculator) Give your answers correct to 1 decimal place.	
2 Factorise fully $x^4 - 81$	
3 In the diagram, DE is parallel to BC. AD = 4 cm, DB = 2 cm and the area of triangle ADE is 48 cm^2. Work out the area of the trapezium DBCE. The diagram is not drawn accurately. 	
4 The equation $kx^2 + 6x + 3 = 0$ has equal roots. Find the value of k.	
5 Write $0.0\dot{5}6\dot{2}$ as a fraction in its simplest form.	

Day 126	S Tier 10-a-day
6 Use the iteration formula $x_{n+1} = 2 + \frac{8}{x_n}$ with $x_0 = 1$ (Calculator) to work out x_1, x_2 and x_3. Give each answer correct to 3 decimal places.	
7 The ratio of blue to green sweets in a tin is 7 : 3. Then $\frac{1}{2}$ of the blue and $\frac{3}{4}$ of the green are taken out. Work out the ratio of blue to green now.	
8 OA = $\mathbf{a}$ and OB = $\mathbf{b}$. OP = $5\mathbf{a} - \mathbf{b}$, OQ = $14\mathbf{a} - 13\mathbf{b}$ and OR = $26\mathbf{a} - 29\mathbf{b}$. (a) Show that P, Q and R lie on a straight line. (b) Work out the ratio PQ : QR in its simplest form.	
9 A runner covers a distance of 320 m, correct to 2 significant figures. The race takes 65 s, correct to the nearest whole number. Work out the upper bound of the speed. Give your answer correct to 3 significant figures. (Calculator)	
10 In a population of 10,000 people, 4% have a certain disease. A test gives a positive result for 75% of people who have the disease and for 3% of people who do not. A person is chosen at random and tests positive. Work out the probability that they have the disease.	