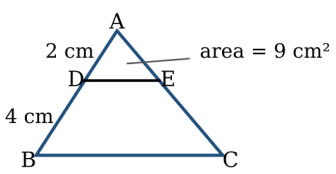
Day 107	S Tier 10-a-day
1 A sector of a circle has angle 45° and area $\frac{121}{8}\pi$ cm^2. (a) Work out the radius of the circle. (b) Work out the length of the arc of the sector. Give your answer to (b) in terms of π.	
2 (a) Solve $11 - 3x < 14$ (b) n is an integer. Write down all the values of n that satisfy $-1 < 3n - 4 \leq 17$	
3 The ratio of Year 10 students to Year 11 students in a school is 1 : 3. 65% of the Year 10 students and 45% of the Year 11 students have a part-time job. What percentage of all of these students have a part-time job?	
4 Expand and simplify $(x + 6)(x + 4)(x - 2)$	
5 In the diagram, DE is parallel to BC. AD = 2 cm, DB = 4 cm and the area of triangle ADE is 9 cm^2. Work out the area of the trapezium DBCE. The diagram is not drawn accurately. 	

Day 107	S Tier 10-a-day
6 The edge length of a cube is increased by 60%. Work out the percentage change in the volume of the cube.	
7 A circle has equation $(x + 1)^2 + (y - 3)^2 = 169$. The point P(−6, 15) 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.	
8 Simplify fully $4\sqrt{8} \times 3\sqrt{3}$	
9 x is an acute angle and $\tan x = \frac{5}{6}$. (a) Find the exact value of sin x. (b) Find the exact value of cos x. Give each answer as a fraction or a surd with a rational denominator.	
10 A bag contains some beads. 3 of them are blue and the rest are black. Two beads are taken at random without replacement. The probability that both are blue is $\frac{3}{10}$. Work out how many beads are black.	