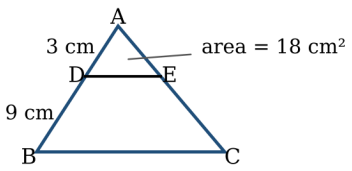
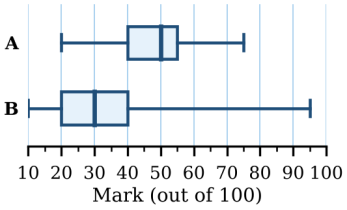
Day 335	IGCSE 10-a-day
1 Make r the subject of $P = 3r^3 + 13$	
2 The temperature, T °C, of a metal bar t minutes after it is removed from a heat source is modelled by $T = 25 + \frac{64}{t}$ $(t \geq 1)$ (a) Find $\frac{dT}{dt}$ when t = 2. (b) Find the value of t when the temperature is falling at 16 °C per minute.	
3 $A = \begin{pmatrix} -4 & 6 \\ -2 & 5 \end{pmatrix}$ and $B = \begin{pmatrix} 20 \\ 22 \end{pmatrix}$. AX = B, where X is a 2 × 1 matrix. Find X.	
4 In the diagram, DE is parallel to BC. AD = 3 cm, DB = 9 cm and the area of triangle ADE is 18 cm^2. Work out the area of the trapezium DBCE. The diagram is not drawn accurately. 	
5 A particle moves in a straight line. Its velocity, v m/s, at time t seconds is given by $v = 50t - 5t^2$ for $0 \leq t \leq 10$ Find the time at which the speed of the particle is greatest, and this greatest speed.	

Day 335 **IGCSE 10-a-day**

6 The box plots show the test marks of the students in two classes, A and B.
(a) Work out the interquartile range for each.
(b) Compare the distributions of A and B.



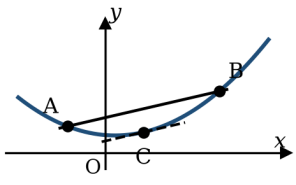
7 Here are six numbers.

$\sqrt{2} + \sqrt{8}$, $\frac{\sqrt{18}}{\sqrt{2}}$, $(1 + \sqrt{2})^2$, $\sqrt{0.25}$, $(\sqrt{3})^2$, $0.\dot{4}$

Write down the rational numbers.

8 Make r the subject of $P = \frac{-4r - 4}{r - 4}$

9 The diagram shows part of the curve $y = 2x^2 - x + 6$. A and B are the points on the curve with x coordinates -1 and 3.
C is the point on the curve between A and B at which the tangent is parallel to AB. Find the coordinates of C.



10 Show that $\frac{1 - \cos^2 x}{\cos^2 x} \equiv \tan^2 x$.