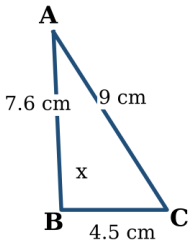
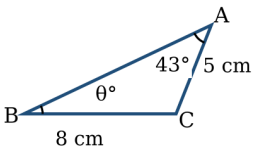
Day 223	IGCSE 10-a-day
1 Work out the gradient of the curve $y = 2x^3 + 8x + 8$ at the point where $x = 1$.	
2 (a) Solve $9 - 2x > 3$ (b) n is an integer. Write down all the values of n that satisfy $-16 < 3n - 4 < -1$	
3 $y = x^3 + 4x + 8$ (a) Find $\frac{d^2y}{dx^2}$. (b) Find the value of x for which $\frac{d^2y}{dx^2} = 0$, and work out the gradient of the curve at this value of x.	
4 A rectangle has length $(3x + 5)$ cm and width $(x + 5)$ cm. The area of the rectangle is 312 cm^2. (a) Show that $3x^2 + 20x - 287 = 0$ (b) Work out the perimeter of the rectangle.	
5 Here are six numbers. $\sqrt[3]{27}, \sqrt{\frac{9}{16}}, (\sqrt{6} + 2)(\sqrt{6} - 2), \sqrt{49}, \sqrt{2} \times \sqrt{6}, \sqrt{50}$ Write down the irrational numbers.	

Day 223 **IGCSE 10-a-day**

6 Work out the size of angle B.
Give your answer correct to 1 decimal place.
(Calculator)



7 The diagram shows triangle ABC. (Calculator)
Angle BAC = 43° and angle ABC is acute.
Work out the size of angle ABC, marked θ.
Give your answer correct to 1 decimal place.
The diagram is not drawn accurately.



8 Grace and Tariq live 330 km apart.
At 10:00 they set off towards each other on the same road.
Grace drives at 90 km/h and Tariq drives at 90 km/h.
(a) At what time do they meet?
(b) How far from Grace's home do they meet?

9 P is the point $(t, \frac{9}{2}t^2)$ on the curve $y = \frac{9}{2}x^2$, where $t \neq 0$.
The normal to the curve at P meets the y-axis at the point Q.
Show that the y coordinate of Q is $\frac{9}{2}t^2 + \frac{1}{9}$.

10 A bag contains x white discs and 4 green discs.
Two discs are taken at random without replacement.
The probability that both are white is $\frac{6}{13}$.
(a) Show that $7x^2 - 55x - 72 = 0$.
(b) Hence work out the number of discs in the bag.