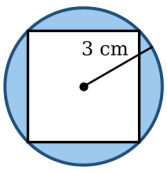
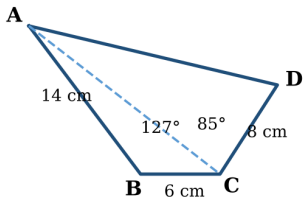
| Day 295 | IGCSE 10-a-day |
|---|---|
| **1** Find $\frac{dy}{dx}$ when $y = -x^5 - 6x^4 + 2x^2$ | |
| **2** Here are the first five terms of a quadratic sequence.<br>13, 21, 33, 49, 69<br>Find an expression for the nth term. | |
| **3** $f(x) = x^{\frac{3}{2}} - 9x$ for $x > 0$<br>(a) Find the range of values of x for which f is a decreasing function.<br>(b) Find the least value of f(x). | |
| **4** $f(x) = \frac{8}{x-3} + 5$<br>(a) Find $f^{-1}(x)$.<br>(b) Find the value of $f^{-1}(3)$. | |
| **5** The diagram shows a square inside a circle of radius 3 cm.<br>The four vertices of the square lie on the circle.<br>Work out the area of the shaded region. Give your answer in terms of $\pi$.<br> | |

| Day 295 | IGCSE 10-a-day |
|---|---|
| **6** $f(x) = 4x^3 + \frac{7500}{x}$<br>Find the values of x for which $f'(x) = 0$. | |
| **7** In a group of visitors, 35% are adults and the rest are children.<br>50% of the adults and 30% of the children buy a souvenir.<br>What percentage of all the visitors buy a souvenir? | |
| **8** In quadrilateral ABCD, AB = 14 cm, BC = 6 cm, CD = 8 cm,<br>angle ABC = 127° and angle ACD = 85°.<br>Work out the area of ABCD. Give your answer correct to 3 significant figures. (Calculator)<br><br> | |
| **9** Bottle A holds concentrate and water in the ratio 4 : 6.<br>Bottle B holds concentrate and water in the ratio 3 : 5.<br>20 litres from bottle A and 8 litres from bottle B are mixed.<br>Work out the ratio of concentrate to water in the mixture. | |
| **10** A bag contains x green discs and 5 white discs. Two discs are taken at random without replacement.<br>The probability that both are green is $\frac{1}{6}$.<br>(a) Show that $x^2 - 3x - 4 = 0$.<br>(b) Hence work out the number of discs in the bag. | |