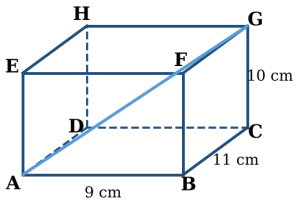
| Day 236 | IGCSE 10-a-day |
|---|---|
| **1** A boat leaves a harbour P and travels 117 km on a bearing of 250° to Q. (Calculator)<br>It then travels 108 km on a bearing of 205° to R.<br>(a) Work out the distance PR.<br>(b) Work out the bearing of R from P.<br>Give distances to 1 decimal place and the bearing to the nearest degree. | |
| **2** Write $\sqrt{28} + \sqrt{112} + \sqrt{7}$ in the form $a\sqrt{7}$ where a is an integer. | |
| **3** $f(x) = x^3 - 3x - 1$<br>Find the y coordinate of the local maximum point and the y coordinate of the local minimum point. | |
| **4** Simplify fully $\frac{3x^2 - 27}{x^2 + 5x - 24}$ | |
| **5** $y = 3x^3 - 6x^2 - 3x + 9$<br>The curve crosses the y-axis at the point A.<br>Work out the coordinates of A and the gradient of the curve at A. | |

**Day 236** **IGCSE 10-a-day**

**6** ABCDEFGH is a cuboid. AB = 9 cm, BC = 11 cm and CG = 10 cm.
(a) Work out the length of AG.
(b) Work out the size of the angle between AG and the face ABFE.
Give answers to 3 significant figures or 1 decimal place. (Calculator)




**7** A point A is on level ground in line with the base of a mast. (Calculator)
The angle of elevation of the top of the mast from A is 41°.
B is a point on the same line, 25 m further from the mast than A.
The angle of elevation of the top of the mast from B is 19°.
Work out the height of the mast. Give your answer to 1 decimal place.

**8** A curve has equation $y = 5x + \frac{270}{\sqrt{x}}$ for $x > 0$.
Find the coordinates of the stationary point and determine its nature.

**9** A factory makes 5,000 parts. 2% of them are faulty.
A scanner flags 98% of faulty parts and wrongly flags 1% of parts that are not faulty.
A part is chosen at random from the parts flagged by the scanner.
Work out the probability that this part is faulty.

**10** y is inversely proportional to x.
x is decreased by 50%.
Work out the percentage change in y.