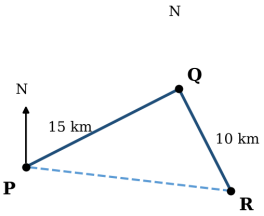
Day 327 **IGCSE 10-a-day**

1 A ship sails 15 km from P to Q on a bearing of 063°.
It then sails 10 km from Q to R on a bearing of 153°.
(a) Work out PR (3 s.f.). (b) Work out the bearing of R from P (nearest degree).
(Calculator)



2 $y = -x^3 - 6x^2 - 9x + 3$
At the point where $x = -2$, is the curve increasing or decreasing? You must show your working.

3 Given that $\frac{25 \times 5^4}{25^2} = 5^n$,
find the value of n.

4 $y = 2x^4 - 5x^3 - x^2 + 7$
The curve crosses the y-axis at the point A.
Work out the coordinates of A and the gradient of the curve at A.

5 The braking distance d metres of a car is directly proportional to the square of its speed v km/h.
When v = 7, d = 73.5m.
Find the value of d when v = 3.

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6 A runner covers 600 metres, correct to the nearest 10 metres, in a time of 11.1 seconds, correct to 1 decimal place. (Calculator)
Work out the lower bound of the runner's average speed in metres per second. Give your answer correct to 3 significant figures.

7 Solve the simultaneous equations
$y = x^2 + 2x - 3$
$y = x - 1$

8 A particle P moves on a straight line. At time t seconds ($t > 0$), its distance from a point O is s metres, where
$s = 2t^2 + \frac{32}{t}$
Show that P is at its minimum distance from O when $t = 2$, and find this minimum distance.

9 The area of a circle is 272 cm^2, correct to the nearest cm^2.
Work out the lower bound of the radius of the circle.
Give your answer correct to 3 significant figures. (Calculator)

10 The table gives information about the masses of some eggs.
An estimate for the mean is 22.
Work out the value of x.

Mass, m (g)	Frequency
$10 < m \leq 15$	5
$15 < m \leq 20$	16
$20 < m \leq 25$	3
$25 < m \leq 30$	x
$30 < m \leq 35$	6