Day 90 **IGCSE 10-a-day**

1 The table shows how 95 adults choose a drink.
A person who chose Tea is picked at random.
Work out the probability that this person is in the group "Women".

	Tea	Coffee	Juice	Total
Men	19	13	9	41
Women	29	5	20	54
Total	48	18	29	95

2 The ratio of men to women in a school is 1 : 2.
70% of the men and 40% of the women own a car.
What percentage of all of these students own a car?

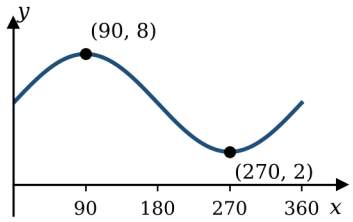
3 A particle moves in a straight line. Its velocity, v m/s, at time t seconds is given by
$v = 24t - 4t^2$ for $0 \leq t \leq 6$
Find the time at which the speed of the particle is greatest, and this greatest speed.

4 Write down the matrix that represents each transformation.
(a) Stretch, scale factor 3, x-axis invariant
(b) Stretch, scale factor 3, y-axis invariant

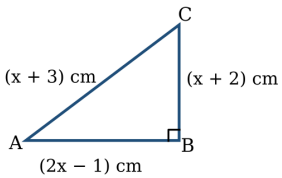
5 $y = 3x + \frac{48}{x}$
Find the coordinates of the stationary points and determine whether each is a maximum or a minimum.

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6 The diagram shows the graph of $y = a \sin x° + c$ for $0 \leq x \leq 360$.
Some points on the graph are labelled.
Find the value of a and the value of c.



7 ABC is a right-angled triangle with sides $(2x - 1)$ cm, $(x + 2)$ cm and $(x + 3)$ cm. The longest side is $(x + 3)$ cm.
(a) Find the value of x.
(b) Work out the area of the triangle.
The diagram is not drawn accurately.



8 Simplify fully $\frac{2\sqrt{75}}{\sqrt{3}}$

9 The tangent to the curve $y = -3x^2 + 3x - 6$ at the point where $x = -1$ meets the axes at A and B.
Work out the area of triangle OAB, where O is the origin.

10 A bag contains some beads. 5 of them are blue and the rest are black.
Two beads are taken at random without replacement.
The probability that both are blue is $\frac{5}{14}$.
Work out how many beads are black.