Day 279 **A Tier 10-a-day**

1 $f(x) = x^3 + x^2 + 2x + 3$
Show that the equation $f(x) = 0$ has a solution between $x = -2$ and $x = -1$.

2 The table shows information about 20 days.
(a) Work out the mean.
(b) Write down the mode.

Late arrivals	0	1	2	3	4
Frequency	2	5	1	8	4

3 A triangle has sides of length 9 cm, 12 cm and 16 cm.
Is the triangle right-angled?
You must show your working.

4 The stem and leaf diagram shows the ages of 15 people.
Key: 3 | 1 represents 31 years
(a) Work out the median age.
(b) Work out the interquartile range.

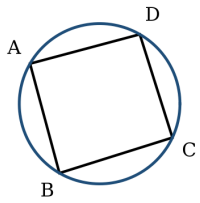
Stem	Leaf
3	1 4 7 8
4	0 3 4 6 7 8
5	8
6	0 3 4 7

5 t = 4.9 is rounded to 2 significant figures.
Write down the error interval for t.

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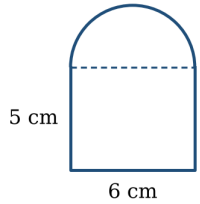
6 A train travels 180 km at 90 km/h and then a further 180 km at 30 km/h.
Work out the average speed for the whole journey.

7 A, B, C and D are points on a circle.
Angle A = $(4x - 5)°$ and angle C = $(3x + 10)°$.
(a) Work out the value of x.
(b) Work out the size of angle A.
The diagram is not drawn accurately.



8 Solve $x^2 - 4x - 10 = 0$ by completing the square.
Give your answers in surd form.

9 The diagram shows a shape made from a rectangle and a semicircle.
Work out the area of the shape.
Give your answer in terms of π.
The diagram is not drawn accurately.



10 Isla invests £15,500 in a savings account. (Calculator)
Compound interest is paid at a fixed rate each year.
After 3 years the investment is worth £26,784.
Work out the annual rate of interest.