Day 242	S Tier 10-a-day

1 Work out $2\frac{1}{2} \div 1\frac{1}{2} + 2\frac{5}{8}$

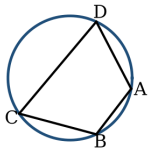
Give your answer as a mixed number or a fraction in its simplest form.

2 A, B, C and D are points on a circle. Angle DAB = (3x + 30)°, angle BCD = (5x + 38)° and angle ABC = (2x + 30)°.

(a) Work out the value of x.

(b) Work out the size of angle ADC.

The diagram is not drawn accurately.



3 Expand and simplify $(2 + \sqrt{3})(6 - 3\sqrt{3})$

4 A sector of a circle has angle 216° and area $\frac{363}{5}\pi$ cm^2.

(a) Work out the radius of the circle.

(b) Work out the length of the arc of the sector.

Give your answer to (b) in terms of π.

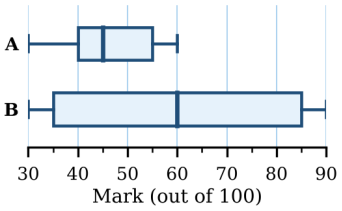
5 Carlos changes £1200 into euros at £1 = €1.15.
Carlos spends €520 and then changes the rest back into pounds at £1 = €1.25.
How many pounds does Carlos get back?

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6 The nth term of a sequence is $n^2 + 7n - 6$.
(a) Work out the 12th term.
(b) Is 362 a term of the sequence? You must show your working.

7 A train travels at a constant speed of 54 km/h.
It takes 60 seconds to cross completely over a bridge which is 700 m long.
Work out the length of the train, in metres.

8 The box plots show the test marks of the students in two classes, A and B.
(a) Work out the interquartile range for each.
(b) Compare the distributions of A and B.



9 Show that $\sqrt{28 + 10\sqrt{3}} = 5 + \sqrt{3}$

10 The line $y = kx - 3$ is a tangent to the curve $y = x^2 + 2$.
Find the possible values of k.
Give any surds in their simplest form.