Day 177 **A Tier 10-a-day**

1 Work out the value of $5x^2 - 8x + 1$ when $x = -6$

2 A rectangular field measures 7 m by 24 m.
Femi walks along the diagonal of the field.
How far does Femi walk?

3 The table shows the results from 25 students.
(a) Work out the mean.
(b) Write down the mode.

Number of pets	0	1	2	3	4
Frequency	6	6	10	1	2

4 Triangle DEF: DE = 10 cm, EF = 12 cm, DF = 11 cm.
Triangle PQR: PQ = 10 cm, QR = 12 cm, PR = 12 cm.
Are the two triangles congruent?
Give a reason for your answer.

5 The probability that Owen scores a goal is 0.2.
The probability that Lena scores a goal is 0.9.
The two events are independent.
Work out the probability that neither Owen nor Lena will score a goal.

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6 Here are four fractions: $\frac{5}{16}$ $\frac{4}{5}$ $\frac{13}{40}$ $\frac{10}{24}$ Which one of these fractions is equal to a recurring decimal?	
7 $f(x) = 3x - 3$ $g(x) = x^2 - 3$ Solve $gf(x) = 22$	
8 A triangle has base 4.2 m and perpendicular height 4.6 m. (Calculator) Each measurement is correct to the nearest 0.1 m. Work out the upper bound for the area of the triangle.	
9 Solve $\frac{6}{(x + 5)} + \frac{4}{(x - 2)} = 1$	
10 Boat P sails 17 miles from a harbour on a bearing of 250°. Boat Q sails 13 miles from the same harbour on a bearing of 145°. (Calculator) Work out the distance between the two boats. Give your answer to 3 significant figures.	