Day 94 **B Tier 10-a-day**

1 Simplify fully
(a) $(y^4)^4$
(b) $x^8 \div x^4$

2 Each exterior angle of a regular polygon is 24°.
Work out the number of sides of the polygon.

3 A straight line has equation $y = -6x - 1$
(a) Write down the gradient of the line.
(b) Write down the equation of a line that is parallel to this line and passes through the point (0, 5).

4 The stem and leaf diagram shows 15 values.
(a) Find the median.
(b) Work out the range.

Stem	Leaf
1	1 5 6 7 8 9
2	0 6 7 9
3	0 1 3 5 8

Key: 1 | 1 means 11

5 Triangle PQR has angles of 40° and 80°, and a side of 7 mm between them.
Triangle XYZ has angles of 80° and 40°, and a side of 7 mm between them.
Are the two triangles congruent?
Give a reason for your answer.

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6 A block causes a pressure of 12 N/m^2 on the floor. The area in contact with the floor is 4 m^2. Work out the force exerted on the floor.	
7 (a) Write $\frac{3}{16}$ as a decimal. (b) Write $\frac{2}{9}$ as a recurring decimal. For part (b), write down the first 8 decimal places and say which digits repeat.	
8 Matchsticks are used to make a row of squares. 1 square needs 4 matchsticks, 2 squares need 7 and 3 squares need 10. (a) Find an expression, in terms of n, for the number of matchsticks needed for n squares. (b) Dan uses 49 matchsticks to make a row. How many squares are in his row?	
9 Triangle ABC is isosceles with AB = AC = 19 m. (Calculator) The base BC = 26 m. Work out the size of angle ABC. Give your answer correct to 1 decimal place.	
10 Work out (a) 2^{-1} (b) $3^0 + \sqrt{49}$	