Day 171	S Tier 10-a-day
1 In triangle PQR, side QR is extended to S. Angle QPR = $(4x - 15)°$ Angle PQR = $(2x + 25)°$ Angle PRS = $(5x + 33)°$ (a) Work out the value of x. (b) Work out the size of angle PRQ.	
2 A concrete slab in the shape of a cuboid weighs 330 N. Its smallest face has area 250 cm^2. Its largest face has area 800 cm^2. Pressure = force ÷ area Work out (a) the greatest pressure and (b) the least pressure the concrete slab can exert on the ground, in N/m^2.	
3 The 4-digit number 4k77 is a multiple of 3. k is a single digit. Find all the possible values of k.	
4 A solid cylinder of radius 6 cm and height 6 cm is melted down. The metal is used to make identical solid spheres of radius 3 cm. Work out the number of spheres that can be made. The volume of a sphere of radius r is $\frac{4}{3}\pi r^3$.	
5 Nia invests £15,000 for 5 years at 3% per year simple interest. Evan invests £15,000 for 5 years at 3% per year compound interest. Work out how much more interest Evan earns than Nia. Give your answer to the nearest penny. (Calculator)	

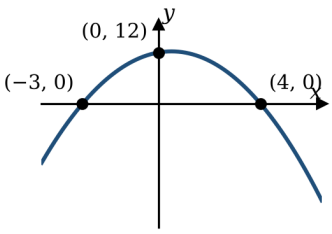
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6 Simplify fully $\frac{x^2 + x - 20}{x + 3} \div \frac{x - 4}{x^2 + x - 6}$

7 The table gives information about 78 masses.
Work out an estimate for the median.
Assume the values in each class are evenly spread.

Mass, m (kg)	Frequency
$20 < m \leq 30$	20
$30 < m \leq 40$	13
$40 < m \leq 50$	8
$50 < m \leq 60$	14
$60 < m \leq 70$	23

8 The diagram shows a sketch of a quadratic curve. It crosses the axes at the points shown.
Find an equation of the curve.
Give your answer in the form $y = ax^2 + bx + c$.



9 The point P(4, −2) is reflected in the line y = x.
The image is then reflected in the x-axis.
(a) Write down the coordinates of the final image of P.
(b) Describe fully the single transformation that is equivalent to these two transformations.

10 The line $y = -x + k$ is a tangent to the curve $y = 3x^2 + 4x + 3$.
Find the value of k.