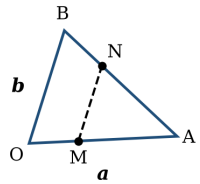
Day 222 **S Tier 10-a-day**

1 The table gives information about 96 times.
Work out an estimate for the median.
Assume the values in each class are evenly spread.

Time, t (minutes)	Frequency
$0 < t \leq 20$	20
$20 < t \leq 40$	24
$40 < t \leq 60$	8
$60 < t \leq 80$	14
$80 < t \leq 100$	30

2 OAB is a triangle. OA = **a** and OB = **b**.
M is on OA with OM : MA = 1 : 2. N is on AB with AN : NB = 2 : 1.
(a) Find ON in terms of **a** and **b**.
(b) Show that MN is parallel to OB.
The diagram is not drawn accurately.



3 Container A holds juice and water in the ratio 5 : 2.
Container B holds juice and water in the ratio 2 : 2.
56 litres from container A is mixed with some of container B.
The ratio of juice to water in the mixture is 7 : 4.
Work out how many litres were taken from container B.

4 FitLife has a joining fee of £4.50 plus £5 per month.
GymNow has a joining fee of £50 plus £1.50 per month.
(a) Work out the number of months for which the two costs are the same.
(b) Which is cheaper for 18 months, and by how much?

5 Work out the exact value of tan 30° + tan 60°
Give your answer in its simplest form, as a fraction or surd. Do not use a calculator.

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6 The line L has equation $15x + 8y = -120$. L crosses the x-axis at the point A and the y-axis at the point B. (a) Find the coordinates of A and B. (b) Work out the area of triangle OAB, where O is the origin.	
7 Write $0.\dot{8}$ as a fraction in its simplest form.	
8 A rectangle has area (11) cm^2 and length $(4 + \sqrt{5})$ cm. Find the width of the rectangle. Give your answer in the form $a + b\sqrt{5}$	
9 Show that the line $y = x + 8$ is a tangent to the circle $x^2 + y^2 = 32$. Find the coordinates of the point where the line touches the circle.	
10 Work out $(\frac{16}{81})^{-\frac{1}{4}}$	