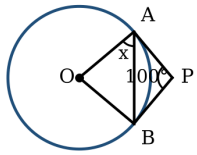
Day 171 **A Tier 10-a-day**

1 $s = ut + \frac{1}{2}at^2$

Work out the value of s when u = −4, a = 6 and t = 6

2 PA and PB are tangents to a circle with centre O.
Angle APB = 100°.
Work out the size of angle x (angle OAB).
Give a reason for each step of your working.



3 The table gives information about 180 measurements.
A histogram is drawn using this information.
(a) Work out the missing frequency.
(b) Work out the height of the bar for the class 40 < t ≤ 70.

Time, t (minutes)	Frequency
0 < t ≤ 30	?
30 < t ≤ 40	16
40 < t ≤ 70	72
70 < t ≤ 90	44

4 x = 0.69 is rounded to 2 significant figures.
Write down the error interval for x.

5 C is the point (−4, −4) and D is the point (−9, −16).
(a) Find the midpoint of CD.
(b) Work out the length of CD. Give your answer as a whole number.

Day 171	A Tier 10-a-day
6 Rationalise the denominator of $\frac{14}{\sqrt{20}}$ Give your answer in its simplest form.	
7 Prove that $(n + 3)^2 - (n - 3)^2$ is a multiple of 4 for any integer n.	
8 A bag contains red counters and blue counters in the ratio 1 : 6. 15 more red counters are added to the bag. The ratio of red counters to blue counters is now 3 : 8. How many counters were in the bag at the start?	
9 Solve $x^2 - 14x + 40 < 0$	
10 Boat P sails 15 km from a harbour on a bearing of 075°. Boat Q sails 25 km from the same harbour on a bearing of 290°. (Calculator) Work out the distance between the two boats. Give your answer to 3 significant figures.	