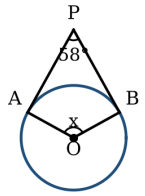
Day 173 **A Tier 10-a-day**

1 PA and PB are tangents to a circle with centre O.
Angle APB = 58°.
Work out the size of angle x (angle AOB).
Give a reason for each step of your working.



2 A gym charges a joining fee of £20 and then £30 each month.
(a) Write a formula for the total cost, £C, after n months.
(b) Maria pays £290 in total. Work out the number of months.

3 Work out $\frac{26.4 + 0.8}{7.5 - 0.14}$ (Calculator)
Give your answer correct to 3 significant figures.

4 The table shows information about 25 matches.
(a) Work out the mean.
(b) Write down the mode.

Goals scored	0	1	2	3	4
Frequency	7	6	4	2	6

5 A is the point (−3, 1) and B is the point (−4, −6).
(a) Find the midpoint of AB.
(b) Work out the length of AB. Give your answer as a surd in its simplest form.

Day 173	A Tier 10-a-day
6 (a) Write $x^2 + 14x - 3$ in the form $(x + a)^2 + b$ (b) Write down the coordinates of the turning point of the curve $y = x^2 + 14x - 3$	
7 Rationalise the denominator of $\frac{10}{\sqrt{27}}$ Give your answer in its simplest form.	
8 y is inversely proportional to $\sqrt{x}$. When x = 1, y = 3. (a) Find a formula for y in terms of x. (b) Work out the value of y when x = 16.	
9 Expand and simplify $(x + 4)(x - 5)(x - 3)$	
10 Jack invests £4000 in a savings account. (Calculator) The account pays compound interest at a fixed rate each year. After 2 years there is £5017.60 in the account. Work out the annual rate of interest.	