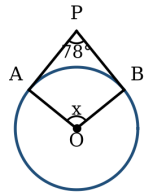
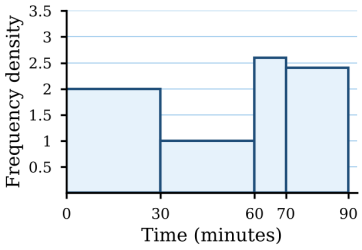
| Day 241 | A Tier 10-a-day |
|---|---|
| **1** PA and PB are tangents to a circle with centre O.<br>Angle APB = 78°.<br>Work out the size of angle x (angle AOB).<br>Give a reason for each step of your working.<br> | |
| **2** Write these numbers in order of size, starting with the smallest.<br>57% 0.69 $\frac{1}{4}$ 0.53 | |
| **3** A cyclist rides 129 km at 12 km/h.<br>Work out the time taken. Give your answer in hours and minutes. | |
| **4** Expand and simplify<br>$(x - 4)(2x + 2)$ | |
| **5** XYZ is a right-angled triangle with the right angle at Y.<br>XZ = 12 cm and angle YXZ = 30°.<br>Work out the exact length of YZ.<br>Do not use a calculator. | |

| Day 241 | A Tier 10-a-day |
|---|---|
| **6** A scientist wants to estimate the number of frogs in a pond.<br>She catches 60 frogs, marks each one and returns them.<br>Later she catches a second sample of 50 frogs. 10 of these are marked.<br>Work out an estimate for the total number of frogs in a pond. | |
| **7** Write as a single fraction<br>$\frac{-4}{(x-3)} - \frac{5}{(x+4)}$ | |
| **8** The histogram shows information about the time of some items.<br>(a) Work out the number of items with a time in the class 30 to 60 minutes.<br>(b) Work out an estimate for the number with a time greater than 65 minutes.<br> | |
| **9** A solid is made from a cylinder and a hemisphere.<br>The cylinder has radius 6 cm and height 10 cm.<br>The hemisphere has the same radius as the cylinder and sits on top of it.<br>Work out the total volume. Give your answer in terms of $\pi$. | |
| **10** Jack invests £14,500 in a savings account. (Calculator)<br>Compound interest is paid at a fixed rate each year.<br>After 2 years the investment is worth £16,912.80.<br>Work out the annual rate of interest. | |