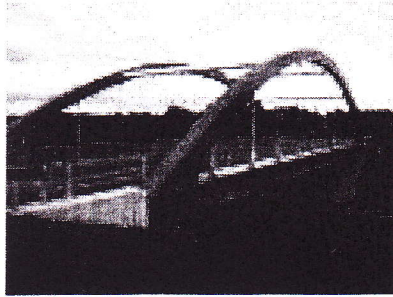


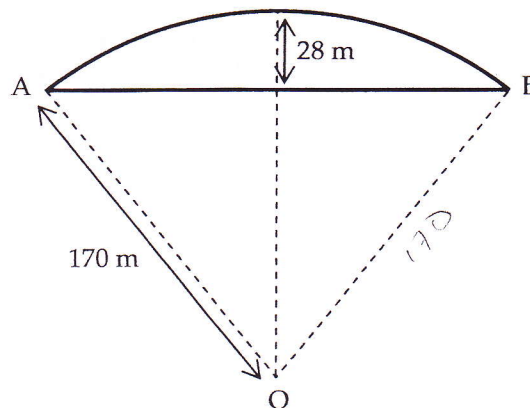
## Intermediate 2

## Revision Homework C (U1)

1. The photograph below shows Braeswick Road Bridge in Colchester.



In a similar bridge the curved part is formed from an arc of a circle, centre O, as shown below.



OA and OB are radii of length 170 metres.

The height of the middle of the bridge above its ends is 28 metres as shown.

Calculate the horizontal distance, AB. [Do not use a scale drawing.]

2. On a £500 holiday, a company offers an easy payment scheme. £100 is repaid on the 15<sup>th</sup> of each month. Interest is charged at a rate of 2.5% per month on the amount outstanding **at the end** of each month. The first payment is to be made in May.

Find the amount outstanding at the beginning of August.

3. Factorise:

(a)  $12pq^2 - 27p^3$

(b)  $6 - m - m^2$

Int 2 Practice Exam Q's – attempt all questions making use of your notes  
(show all working)

**Q1** In 2002 the Portable Phone Company announced that their profits were £850 000. In the next 3 years their profits increased by 4.2% each year. How much profit did the company make in 2005?  
Give your answer to the nearest thousand.

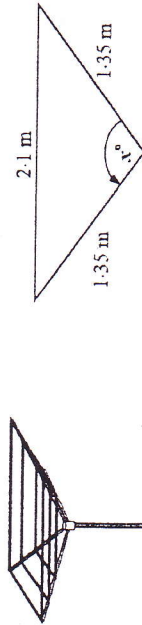
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**Q3** Multiply out the brackets and simplify the expression

$$(3x - 2)(x^2 + 4x - 3) + 7x$$

3

**Q5** The arms of a rotary clothes drier are 1.35 m long and the clothes line between them is 2.1 m long.



Calculate the angle,  $x^\circ$ , between the arms.

4

**Q7** As part of their customer service review a local supermarket surveyed 90 customers to check the amount of time a customer has to wait at the checkout before being served.

waiting time (mins)	Number of customers
0	5
1	9
2	11
3	15
4	16
5	13
6	10
7	7
8	4

- Make a cumulative frequency table from the above data.
- Find the median, lower quartile and upper quartile for this distribution.

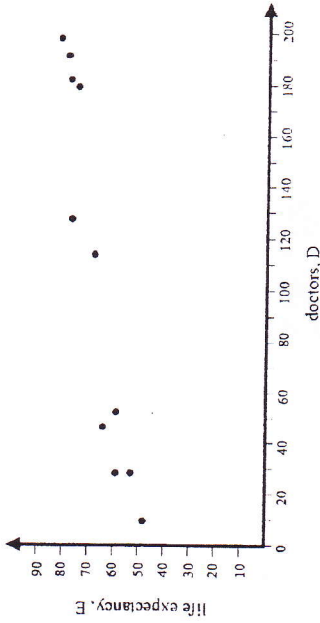
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3

Int 2 Practice Exam Q's – attempt all questions making use of your notes  
(show all working)

**Q8** The table and graph below show the relationship between the number of doctors per 10 000 of population (D) and life expectancy (E) in eleven countries.

doctors, D	9	28	28	47	53	113	128	179	182	191	198
life expectancy, E	48	53	59	64	59	68	77	75	78	79	82



- Draw the line of best fit onto the diagram.
- Find the equation of the line of best fit.
- Use your answer to part (b) to predict the life expectancy in a country which has 80 doctors per 10 000 of population.

2

3

1

**Q10** A bowling trophy is a plaque with arcs of concentric circles engraved in gold with a gold triangle at the bottom.



The largest circle has a radius of 7 centimetres and the largest arc, AB, is 35.4 cm in length.

- Calculate the angle  $x^\circ$  at the centre.
- Calculate the area of the gold triangle.

3

3