Practice Exam 2

1. A local council recycles 42 000 tonnes of waste a year.

The council aims to increase the amount of waste recycled by 8% each year.

How much waste does it expect to recycle in 3 years time?

Give your answer **to three significant figures**.

4 marks

1. A straight line cuts the *x*-axis at the point (9, 0) and the *y*-axis at the point (0, 18) as shown.

 Find the equation of this line.

3 marks

1. The heights, in centimetres, of seven netball players are given below.

173 176 168 166 170 180 171

For this sample, calculate:

(*a*) the mean; 1 mark

 (*b*) the standard deviation. 3 marks

**Show clearly all your working.**

1. Jamie works as a potter for a company which makes china ornaments.

He earns a basic salary of £218 per week plus 80 pence for every ornament he makes.

Jamie saves $\frac{2}{5}$ of his gross pay every week.

 One week he makes 40 ornaments.

Calculate how much Jamie saves that week.

 3 marks



1. The table shown below is used to calculate loan repayments.

 Samir wishes to borrow £15 000.

 How much will the loan cost him if he repays it over 48 months, with payment protection?

3 marks

1. Anna earns £42 000 per year. She has tax allowances of £5425.

 The rates of tax applicable for the year are given in the table below.

 How much is Anna’s **monthly** tax bill?

5 marks

1. A cylindrical container has a volume of 3260 cubic centimetres.

 The radius of the cross section is 6·4 centimetres.

 Calculate the height of the cylinder.

3 marks

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| Question | Marking Scheme | Evidence |
| 1. | ANS : 52900 tonnes* Know how to increase 8%
* Know how to calculate amount
* Calculate amount of waste
* Round to 3 significant figures
 | * 1.08
* 42000 x 1.083
* 52907.904
* 52900

4 marks |
| 2. | ANS: y = -2x + 18* Know how to calculate gradient
* Know how to find y intercept
* Equation of the line correct
 | * m = $\frac{18-0}{0-9}$ = -$ \frac{18}{9}$ = - 2
* c = 18
* y = -2x +18

3 marks |
| 3. (a) | ANS :172* Calculate the mean
 | * 172

1 mark |
| (b) | ANS: 4.8cm* Calculate
* Substitute into formula
* Calculate standard deviation
 | * 1, 16, 16, 36, 4, 64, 1
* $\sqrt{\frac{138}{6}}$
* 4.8

3 marks |
| 4. | ANS: £100* Know how to calculate gross pay
* Know how to work out savings
* All calculations correct
 | * 218 + 40 x 0.8 (=250)
* 250 ÷ 5 x 2
* 100

3 marks |
| 5. | ANS: £4851.36* Interpret loan table
* Calculate total repayment
* Calculate cost of loan
 | * 413.57
* 413.57 x 48
* 19851.36-15000

= 4851.363 marks |
| 6. | ANS: £642.50* Know how to calculate taxable income
* Know how to calculate lower rate of tax
* Know how to calculate upper rate of tax
* Know how to calculate monthly tax
* Calculate monthly tax bill
 | * 42000-5425
* 34600 x 0.2
* (36575-34600) x 0.4
* (6920 + 790) ÷ 12
* 642.50

5 marks |
| 7. | ANS :25.3cm* Know how to find expression for volume of cylinder
* Equate volume to 3260
* State value for *h*
 | * π x 6.42 x *h*
* π x 6.42 x *h* = 3260
* 25.3

3 marks |