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Practice Paper A
Paper 2

Name: _____

Class: _____

Teacher: _____

Date: _____

You may **NOT** use a calculator.

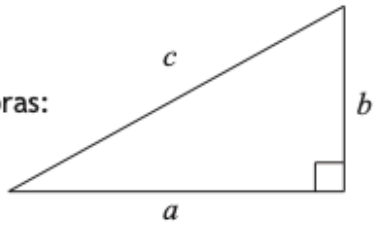
Full credit will be given only where the solution contains appropriate working.

FORMULAE LIST

Circumference of a circle: $C = \pi d$

Area of a circle: $A = \pi r^2$

Theorem of Pythagoras:



$a^2 + b^2 = c^2$

Volume of a cylinder: $V = \pi r^2 h$

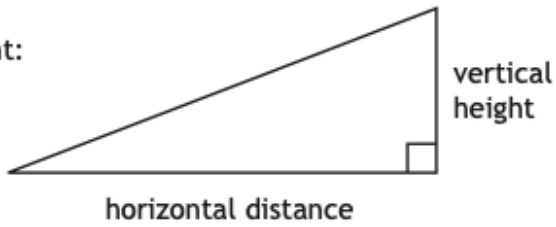
Volume of a prism: $V = Ah$

Volume of a cone: $V = \frac{1}{3}\pi r^2 h$

Volume of a sphere: $V = \frac{4}{3}\pi r^3$

Standard deviation: $s = \sqrt{\frac{\Sigma(x-\bar{x})^2}{n-1}} = \sqrt{\frac{\Sigma x^2 - (\Sigma x)^2/n}{n-1}}$, where n is the sample size.

Gradient:



$$\text{gradient} = \frac{\text{vertical height}}{\text{horizontal distance}}$$

All questions should be attempted

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Marks

1. Fiona buys a house for £78,000
The price of the house increases by 3% annually for 3 years.
The price increase goes up to 4.5% the following two years

a) What is the value of the house after 5 years?
Give you answer to the nearest thousand **5**

Fiona then sells the house for £109,000.

b) Using the **original** price of the house find the percentage profit. **2**

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Marks

2. Mairead takes out a loan of £5800
The interest and administration fee is 5.5% of the loan amount.
The total amount will be paid back in 10 equal monthly payments.
Calculate the monthly payment. **4**

3. Paula, Clare and Eva are paid depending on how many leaflets they hand out.

They hand them out in a ratio of 3:5:7 respectfully.

If Clare receives £135, how much do they make altogether **3**

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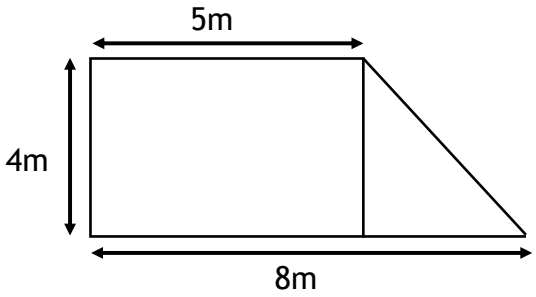
Marks

4. A new playground is built in Falkirk



A new fence will be built around it.

a) Calculate the length of fence required to go around the entire playground. **3**

The fence being used is sold in rolls of 6m. Each roll costs £12.40.

b) Calculate the cost for the fence. **2**

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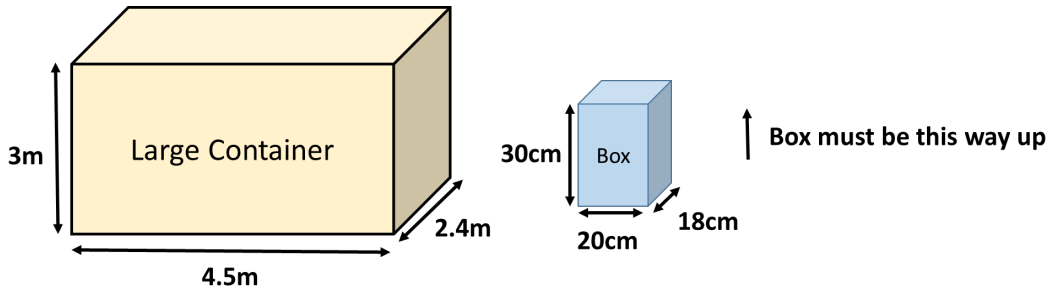
Marks

5. Boxes are being stacked into a larger container with dimensions as shown below.



What is the most number of boxes you can fit inside the large container? **3**

6. A shop sells premium laundry detergent in two quantities

Option 1: 500ml for £6.20
Option 2: 3.2L for £19.10

Which option is the best value for money? **3**

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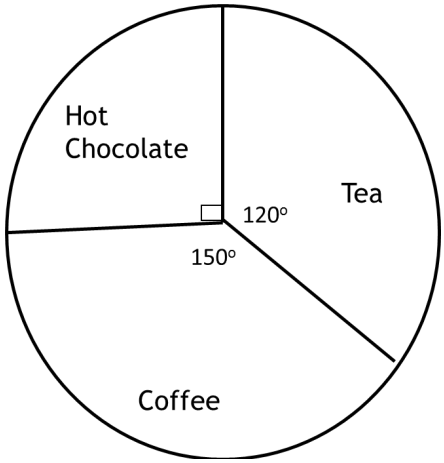
Marks

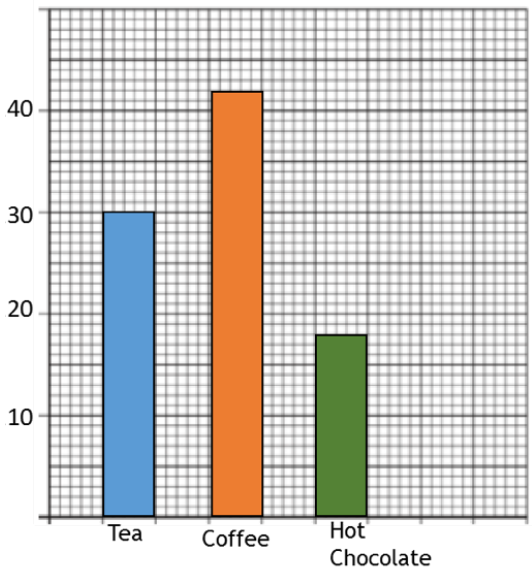
7. A chain café takes a survey in Edinburgh and Glasgow of what customers preferred drink is.

The shop in Glasgow produces their results in a bar chart as shown below.



a) What percentage of people order tea? Give your answer to one decimal place. **2**

The Edinburgh shop produced the following pie chart.



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Marks

b) Make two comparisons between the shops using the bar and pie charts to justify your answers. **2**

c) Which shop had the higher probability of the next customer ordering a coffee? **3**

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Marks

8. On Monday the number of customers who enter a shop every hour is recorded.

24 26 45 43 32 55 34 21

a) Calculate the mean and standard deviation of the number of customers in the shop. **4**

b) On Tuesday the mean is 28 and the standard deviation is 6.4. Make two valid comparisons between the number of customers on Monday and Tuesday. **2**

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Marks

9. Chloe is paid £9.70 an hour.
She works 180 hours in the month of March

a) Calculate her monthly pay. **1**

Chloe pays 10% of this into her pension.
She also pays £380 income tax and £208.40 for national insurance.

b) Calculate her take home pay 3

Chloe also has the following bills throughout the month.

Food	£120
Clothes	£145
Gas and Electricity	£80
Car	£180
Going out	£40
Other	£35

c) After all these Expenses how much will Chloe have leftover? 2

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Marks

10. Stefan goes on Holiday to New York.

He exchanges £4000 into US Dollars using the following exchange rate.

£1 = 1.85 US dollars

Stefan stays in New York for one week, spending 350 dollars per day.

He then exchanges what is left into Canadian Dollars for his trip to Toronto.

1 US Dollar = 0.85 Canadian Dollars

He stays in Toronto for 4 days, spending 290 Canadian Dollars each day.

a) Calculate how much Canadian Dollars Stefan will have left at the end of his **trip to the nearest thousand**. **6**

b) Convert this amount back into pounds, to the nearest hundred. **1**

c) What percentage of the money he started with has Stefan spent? 1

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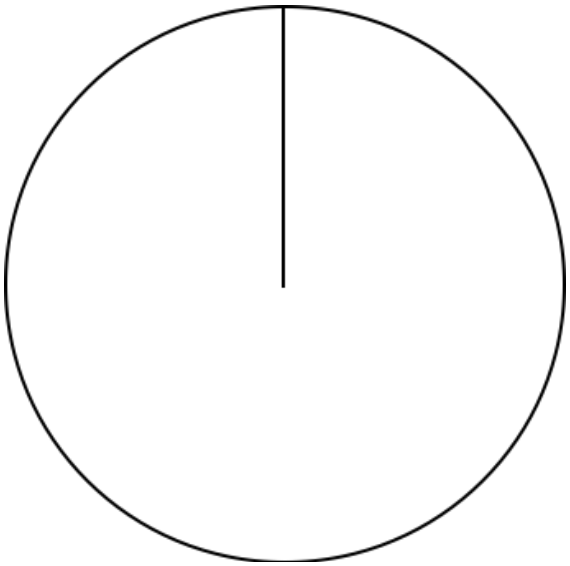
Marks

11. All the pupils in a school are asked where they are going on holiday

436 said **within the UK**
180 said to **Europe**
104 said **America**

Construct a pie chart to illustrate this information. **3**



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Marks

12. Two planes leave an airport.

The first plane flies directly East of the airport for 200 miles.

The second plane flies on a bearing of 150^{o}, for 140 miles.

a) Construct a scale drawing of these drawings using a scale of 1cm = 20 miles. **4**

b) How far away are the planes from each other at this point. **2**

c) So far both planes have been flying for exactly 1 hour and 15 minutes. Calculate the **mean** speed of the planes in **mph**. **4**

This is the end of the paper.