



Name: _____

Year 8 Stage 4 Mathematics Assignment Term 3 2024

Financial Maths and Data

Task number: 2

Weighting: 30%

Due Date: Week 6

Nature and description of the task:

This assignment consists of two parts. There will be 2 periods assigned in class to work on this assignment. It is expected that you will need to finish the assignment in your own time.

Note: If you are absent for either of these 2 periods, you will need to complete more of the assignment in your own time.

Part A: Financial Mathematics – The Supermarket

In this part, you will be doing some best buys calculations and working with percentages and deductions for common supermarket products.

Part B: Data Collection, Visualisation and Analysis

For this part, you will collect two data sets (one categorical and one numerical). You will be required to display the data you collect in tables, graphs, and to calculate statistical measures.

Outcomes assessed:

MA4-1WM - communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols

MA4-2WM - applies appropriate mathematical techniques to solve problems

MA4-3WM - recognises and explains mathematical relationships using reasoning

MA4-19SP - collects, represents and interprets single sets of data, using appropriate statistical displays

MA4-20SP - analyses single sets of data using measures of location, and range

MA4-5NA - operates with fractions, decimals and percentages

MA4-6NA - solves financial problems involving purchasing goods

Non-completion of Task:

If you know you are going to be away on the day that the task is due, you must make alternative arrangements with your teacher beforehand. If you are suddenly away on the day that the task is due, you must contact your teacher or Head Teacher on your return to school.

Plagiarism:

The using of the work of others without acknowledgement will incur serious penalties and may result in zero award. Any cheating will also incur penalties

Failure to follow the above procedures may result in a zero award.

Part A – Financial Mathematics

Task 1 – Toilet paper (total 15 marks)

You can purchase toilet paper in many different packs. Which pack of toilet paper would you buy?



1. From the product information sheet on page 3, select 3 different sizes and priced packs of toilet paper. Record your information in the table below. **(3 marks)**

Brand	Number of rolls	Number of sheets per roll	Price	Price per roll	Price per sheet

2. Show your working for calculating the price per roll and for the price per sheet, in the table above. **(6 marks)**

3. Using the information in the table above, which is the cheapest way to buy toilet paper? **(1 mark)**

4. Which toilet paper pack would you buy? What factors helped you make your decision?
Your answer should be detailed and identify 4 separate reasons. **(5 marks)**

Toilet paper packs



Coles Simply 2 Ply Toilet Tissue
18 pack
260 110mm x 100mm sheets per roll
\$9.00



Quilton 3 Ply Toilet paper
20 pack
180 11cm x 10cm sheets per roll
\$11.00



Kleenex Complete Clean Toilet paper
32 rolls
180 10cm x 10cm sheets per roll
\$16.50



Coles So Soft 3 Ply Toilet Paper
24 rolls
190 11cm x 10cm sheets per roll
\$10.60



Sorbent Hypo-Allergenic Toilet Paper
12 rolls
180 10 x 10.5 cm sheets per roll
\$7.00



iCare Luxury Toilet Paper
24 pack
180 10cm x 10cm sheets per roll
\$13.00



Black and Gold 2 Ply Toilet Tissue
4 pack
260 105mm x 100mm sheets per roll
\$3.00




Quilton Double Length 3 Ply Toilet paper
4 pack
360 11cm x 10cm sheets per roll
\$6.00






Kleenex Complete Clean Toilet paper
45 pack
180 10cm x 10cm sheets per roll
\$25.00


Task 2 – Would you rather? (11 marks)

<p>Which would you rather purchase jeans from?</p> <p>Store A  Store B</p> <p>30% off one pair \$30 dollars off</p>	<p>What is the best option if the pair of jeans originally costs \$60</p>	<p>2</p>
	<p>What is the best option if the jeans originally cost \$150.</p>	<p>2</p>
	<p>What do you notice?</p>	<p>1</p>
	<p>Is there a cost price for the jean where the amount is the same?</p>	<p>1</p>
	<p>Which would you rather?</p>	<p>1</p>

Task 2 – Select one of the following “would you rather” questions from the 3 options below.

Level	Question	Working	Marks
D/C	<p>Would you rather... Be given 60% of 2 pizzas or 26% of 5 pizzas?</p> 	<p>Working and diagrams</p>	4
D/C	<p>Would you rather.... Have 12.5% of \$5 or 78% of 80 cents?</p> 		4
B/A	<p>Would you rather Receive a single 70% discount OR A 40% discount and then a 30% discount on your purchase?</p> 		4

Task 3 – Shopping Dockets and GST (8 marks)

 <p>The Lolly Bug Little Hartley 2297 Great Western Hwy, Little Hartley NSW 2790 ABN 80 097 604 763</p> <p>Main Outlet Served by: LOLLY BUG LH Register: Main Register</p> <hr/> <p>Receipt / Tax Invoice #87785 Aug 3, 2024 at 1:35 PM</p> <hr/> <table border="0"> <tr> <td>NEW ENGLAND LARDER JAMS AND RELISH / SOUR CHERRY JAM</td> <td></td> <td></td> </tr> <tr> <td>1 @ \$15.95</td> <td></td> <td>\$15.95</td> </tr> <tr> <td>CHOCOLATE SNAKES EVERFRESH 150G</td> <td></td> <td></td> </tr> <tr> <td>1 @ \$4.95</td> <td></td> <td>\$4.95</td> </tr> <tr> <td colspan="2">Subtotal</td> <td>\$20.45</td> </tr> <tr> <td colspan="2">Total Tax (GST, 10%)</td> <td>\$0.45</td> </tr> <tr> <td colspan="2">TOTAL (2 items)</td> <td>\$20.90</td> </tr> </table>	NEW ENGLAND LARDER JAMS AND RELISH / SOUR CHERRY JAM			1 @ \$15.95		\$15.95	CHOCOLATE SNAKES EVERFRESH 150G			1 @ \$4.95		\$4.95	Subtotal		\$20.45	Total Tax (GST, 10%)		\$0.45	TOTAL (2 items)		\$20.90	<p>How much was spent at the Lolly Bug? 1</p> <p>When was the purchase made? 1</p> <p>What is the price per 100g for Chocolate Snakes? 2</p> <p>How much GST was paid? 1</p> <p>Which item did not incur GST? Justify by providing working or diagrams to support your answer. 3</p>	<p>1</p> <p>1</p> <p>2</p> <p>1</p> <p>3</p>
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Part B – Data

31 marks total for this part

In this part of the assignment, you will collect **TWO** sets of data.

One set must be categorical data, while the other must be numerical data.

You can collect data from doing a simple experiment or from researching secondary sources. Suggestions are listed below. You need to select one from each of the lists below.

Suggestions for your Categorical Data Set

- Experiment: Toss two coins 30 times and record the different outcomes.
- Experiment: Toss a coin and roll a die 30 times and record the different outcomes.
- Experiment: Pick a random card from a 52 pack of cards and record the suit (Clubs, Spades, Diamonds or Hearts). Repeat 30 times.
- Research: Ask your classmates what their favourite brand is from Nike, Adidas, Asics, Converse and New Balance? Ask at least 15 classmates.
- Research: Record the hair colour of at least 15 of your classmates.
- Research: Ask your classmates what their favourite colour is. Ask at least 15 classmates.
- Other: If you wish to do something else, you must first speak to a maths teacher.

Suggestions for your Numerical Data Set


- Experiment: Roll a die 30 times and record the frequency of each outcome
- Experiment: Roll two dice 30 times and record the sum of the dice
- Investigation: How many words are there on a page in a book? Do a sample of 20 pages.
- Investigation: How many letters are there in each word on a page?
- Research: What are the ages of NRL players? Pick 30 players.
- Research: What are the heights of famous Netball players? Pick 30 players.
- Research: What is the average daily maximum temperature of different cities around the world in January? Pick at least 10 cities.
- Research: What is the population of different countries around the world? Pick at least 10 countries.
- Other: If you wish to do something else, you must first speak to a maths teacher.

2. Record the data from your investigations in a frequency table in the space below. Use a ruler to draw the table and including column headings.

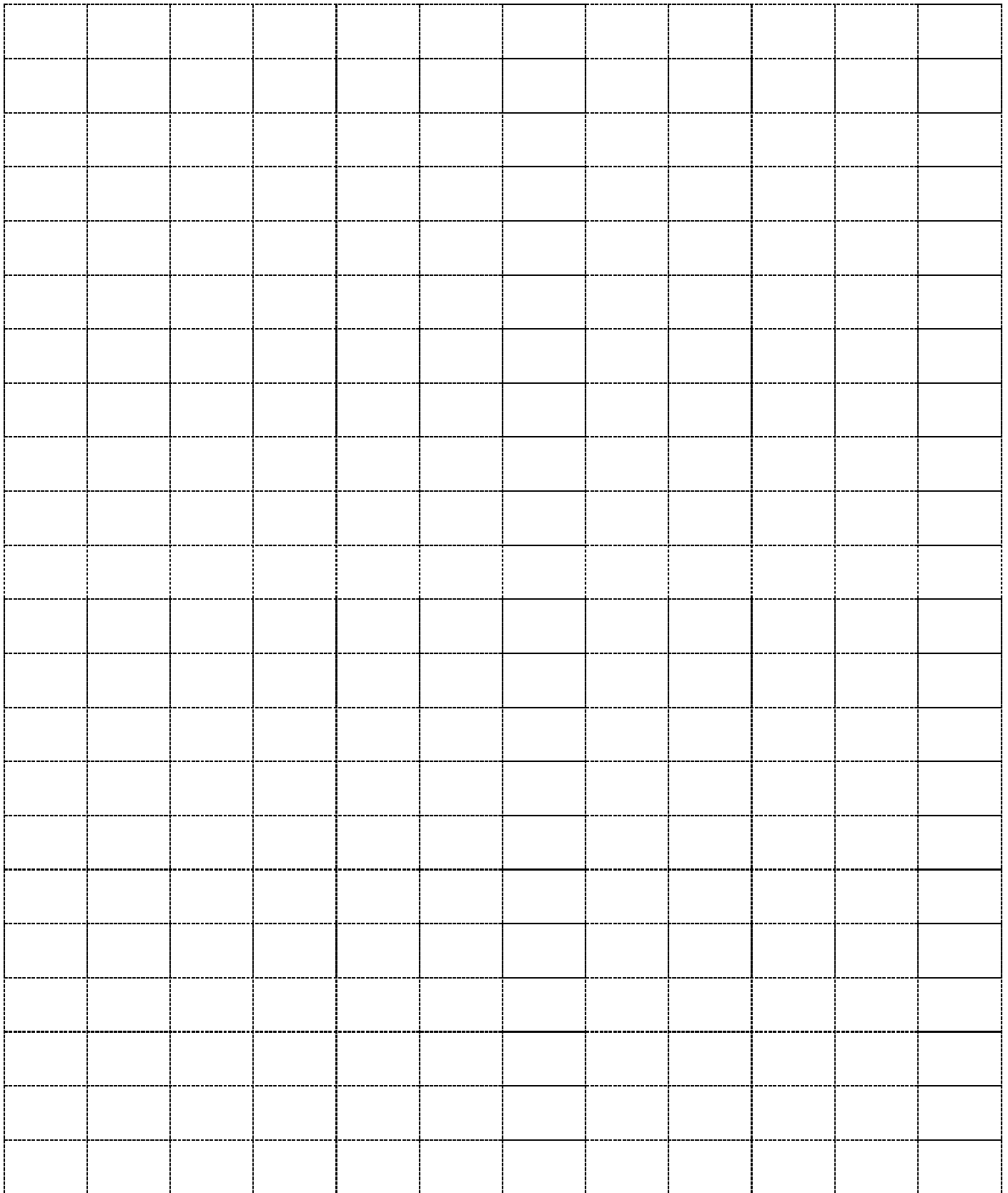
Categorical Data Frequency Table (2 marks)	Numerical Data Frequency table (2 marks)
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Data Visualisation

1. Display the results of your **categorical data set** in a **dot plot** in the space below. Remember to include a title for the horizontal axis and a title for the graph. **(2 marks)**



2. Display the results of your numerical data set in a **column graph** or a **histogram** in the space below. Use a ruler. Remember to include titles for the horizontal and vertical axes, a title for the graph, and an appropriate scale. Use a ruler. **(4 marks)**



Data Analysis

1. For your **categorical** data set:

a) Identify the mode of your data **(1 mark)**

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b) Are there any potential outliers? If so, what are they? **(1 mark)**

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2. For your **numerical** data set:

a) Identify the mode of your data. **(1 mark)**

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b) Calculate the range of your data. **(1 mark)**

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c) Calculate the median of your data. Show working. **(2 marks)**

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d) Calculate the mean of your data. Show working. **(2 marks)**

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e) Are there any potential outliers? If so, what are they? **(1 mark)**

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Reflection Questions

1. Why do you think you were not asked to calculate the mean, mode and range for your categorical data set? **(2 marks)**

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2. What is another type of graph (other than a dot plot or column graph) that would have been appropriate to display your categorical data? Justify your answer. **(2 marks)**

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3. What is another type of graph (other than a dot plot or column graph) that would have been appropriate to display your numerical data? Justify your answer. **(2 marks)**

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