


Name:			Date:	
Class:				
	<b>Year 11 Essential Mathematics</b> <b>Major Test 3 2018</b> <b>Topic – Units of Energy, Formulas and Graphs</b>		<div style="border: 1px solid black; padding: 5px; text-align: right;"> / 44  6 % </div>	
	<b>Total Time:</b>	50 minutes		
<b>Weighting:</b>	6%			
<b>Equipment:</b>	To be provided by the student: Pen, pencil, ruler, 1 double sided A4 page of notes, scientific calculator			

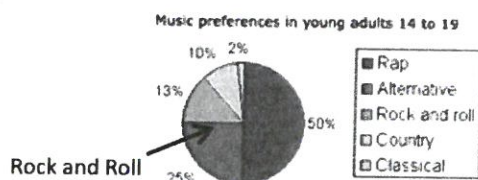
-1 mark overall for no units

**Full working out must be shown to get full marks. Attempt all questions.**

### Question 1

**2 marks**

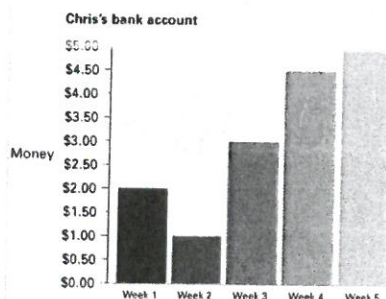
a)



If there were a total of 205 young adults surveyed, approximately how many preferred Rock and Roll?

$25\% \text{ of } 205 = 81.25 \approx 81$   
 $13\% \text{ of } 205 = 26.65 \approx 27 \text{ people}$

b)



The amount in the bank for Week 4 is how much greater than the amount for Week 2.

$4.50 - 1.00 = \$3.50$

-1 No cents (2 dp)

### Question 2

**6 marks (3, 1, 1, 1)**

56 children were asked which of the following hobbies they prefer. Their results are recorded in the table below.

a) Complete the missing values

	Computer games	Watch Films	Read	Total
Girls	5	11	6	22
Boys	19	11	4	24
Total	24	22	10	56

(3)  
1/2 each

b) How many boys prefer computer games?

$\frac{19}{24} = 79.1\bar{2}\%$

Ans (1)

(6)

c) What percentage of children watched films?

$$\frac{22}{56} = 39.29\% \quad \checkmark \text{ Ans}$$

d) What percentage of girls read books?

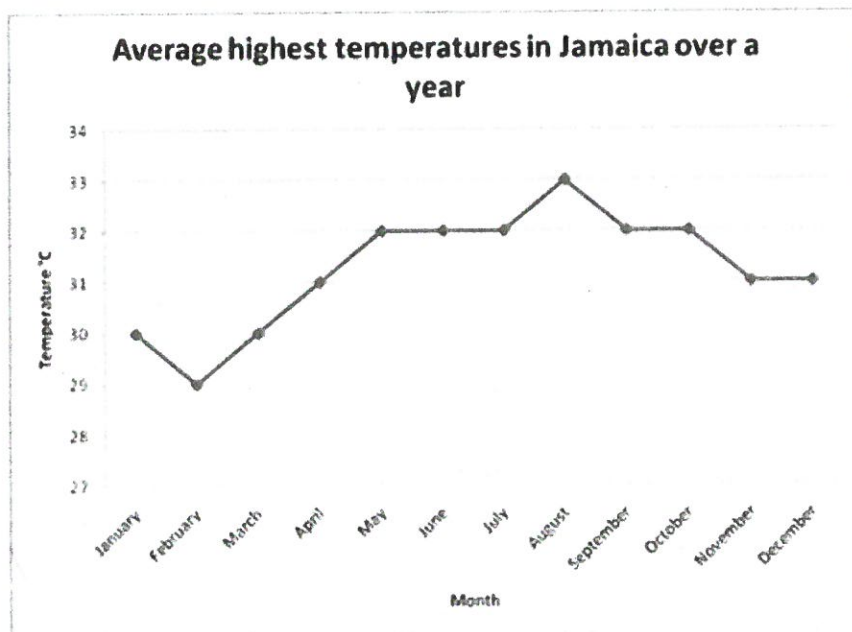
$$\frac{6}{22} = 27.27\% \quad \checkmark \text{ Ans}$$

(2)

### Question 3

7 marks

The line graph shows the temperatures over the year in Jamaica



Use the graph to answer the following questions:

a) Which month had the highest temperature

August - 33°  $\checkmark$  Ans

b) Which month had the lowest temperature

Feb - 29°  $\checkmark$  Ans

c) What is the difference in temperature between February and May?

$$32 - 29 = 3^\circ \quad \checkmark \text{ Ans}$$

d) How many months have a higher temperature than 30 °C

9 months  $\checkmark$  Ans

e) Would you expect the temperature range in Australia to be similar or different? Explain your answer

Different. Australia is in different climate to Jamaica.  
Reason

9

#### Question 4

8 marks

From the list of data displays below, choose the most appropriate way to display the data described in each part below and explain the reasons for your choice.

- Column graph
- Line graph
- Clustered column graph
- Pie graph

a) The heights (measured in cm) of 20 boys and 20 girls to compare them.

Appropriate data display: Clustered column graphs ✓

Reason:

Anything reasonable ✓

b) Home loan rates every November for the last 10 years

Appropriate data display: Line ✓

Reason:

→ Shows change in time or reasonable ✓

c) The foot length, measured in cm, of the members of your class.

Appropriate data display: Column graph ✓

Reason:

→ Anything reasonable ✓

d) The percentage of students in each year at our school.

Appropriate data display: Pie chart ✓

Reason:

→ Anything reasonable ✓



# Question 5

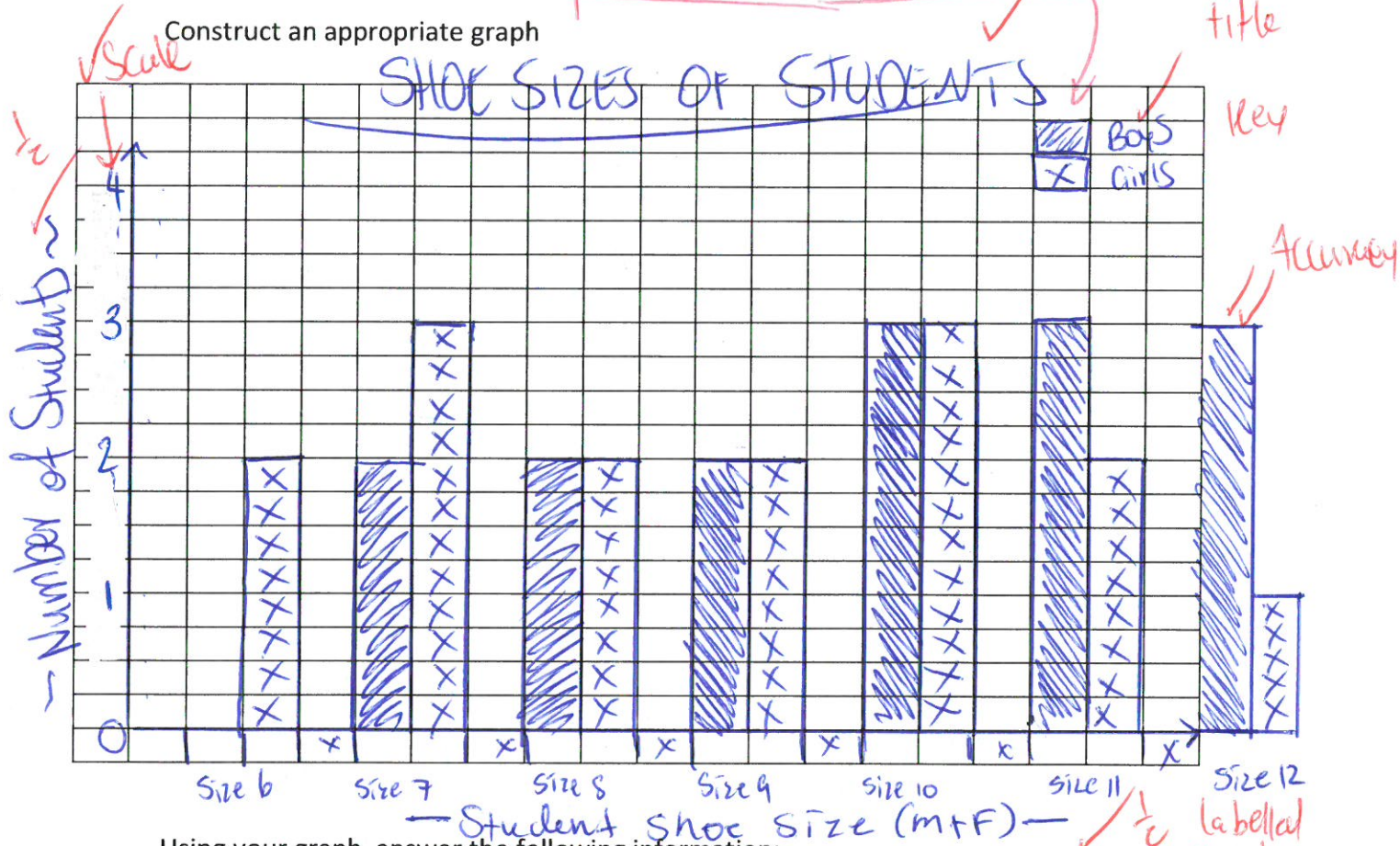
12 marks

A survey of 30 students was conducted. The data is shown below. The information was recorded as M for Male, F for Female, and then a number was the shoe size.

11M, 10F, 9F, 9M, 9M, 10F, 11F, 8F, 12F, 11M, 6F, 7M, 7F, 10M, 12M, 11F, 12M, 6F, 7M, 8M, 8F, 7F, 11M, 10M, 12M, 10F, 9F, 7F, 10M

-1 if 75% of space Not used

Construct an appropriate graph



Using your graph, answer the following information:

a) What was the most common shoe size for both genders?

Size 10

b) Which gender had more samples?

Neither, both had 15

c) What percentage of all recorded shoe sizes are the size 11 results.

$$\frac{5}{30} = \frac{1}{6} = 16.67\%$$

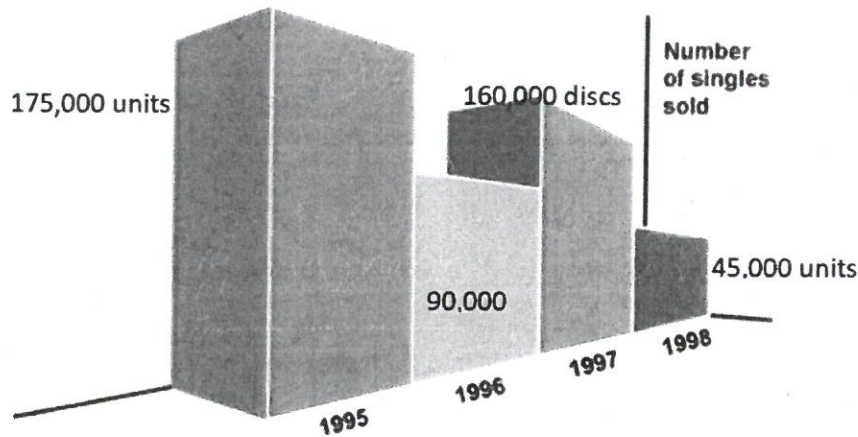
d) What proportion of all boys had a shoe size below a size 10? Leave your answer as a %

$$\frac{6}{15} = 40\%$$

## Question 6

5 marks

- a) Make 2 comments about how the graph below showing the number of people who own different types of pets, is misleading.

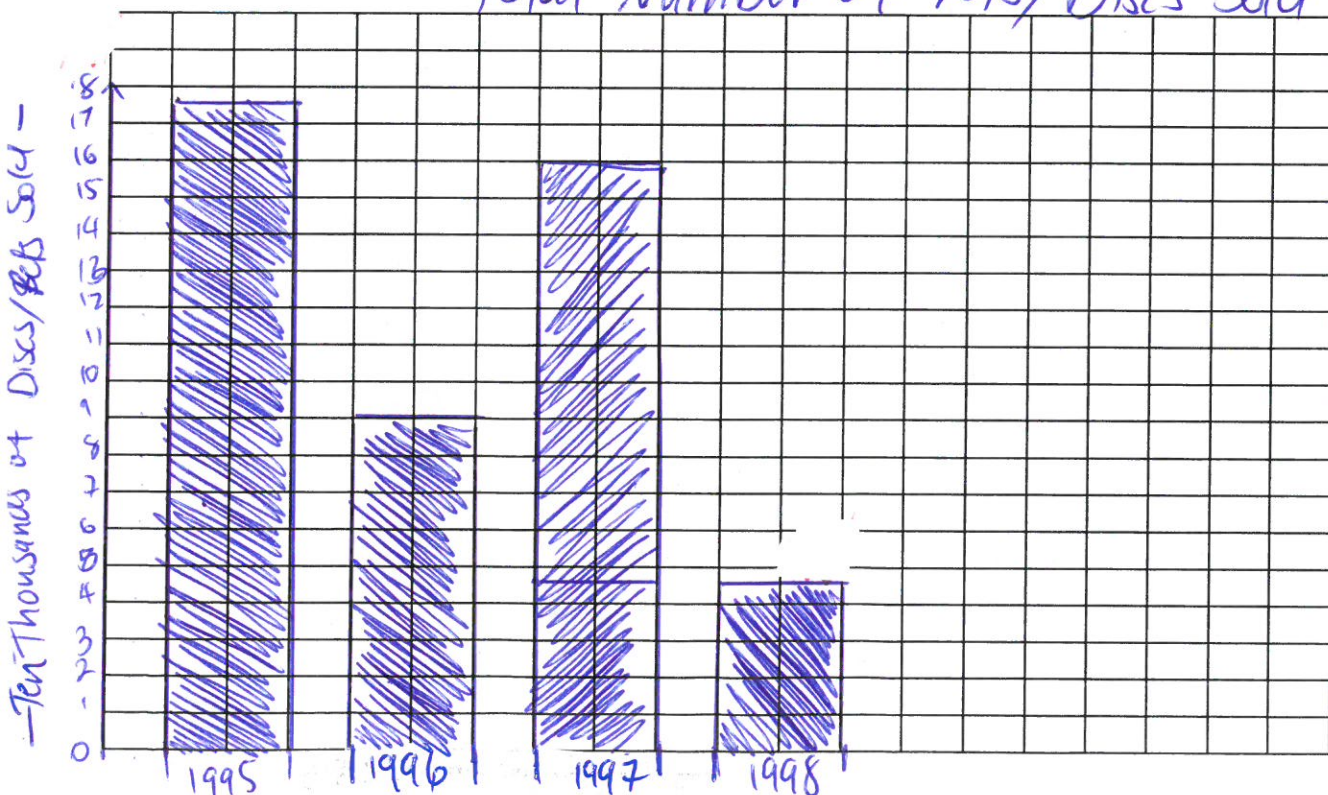


or DISCS  
either is good

-I mark if < 75% of space is used

- b) Redraw this column graph, making the necessary improvements to make this graph accurate

Total Number of Pets/Discs Sold



✓ title  
✓ labelled axes  
✓ accurate  
✓ appropriate scale

years of Sales Data-

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# Question 7

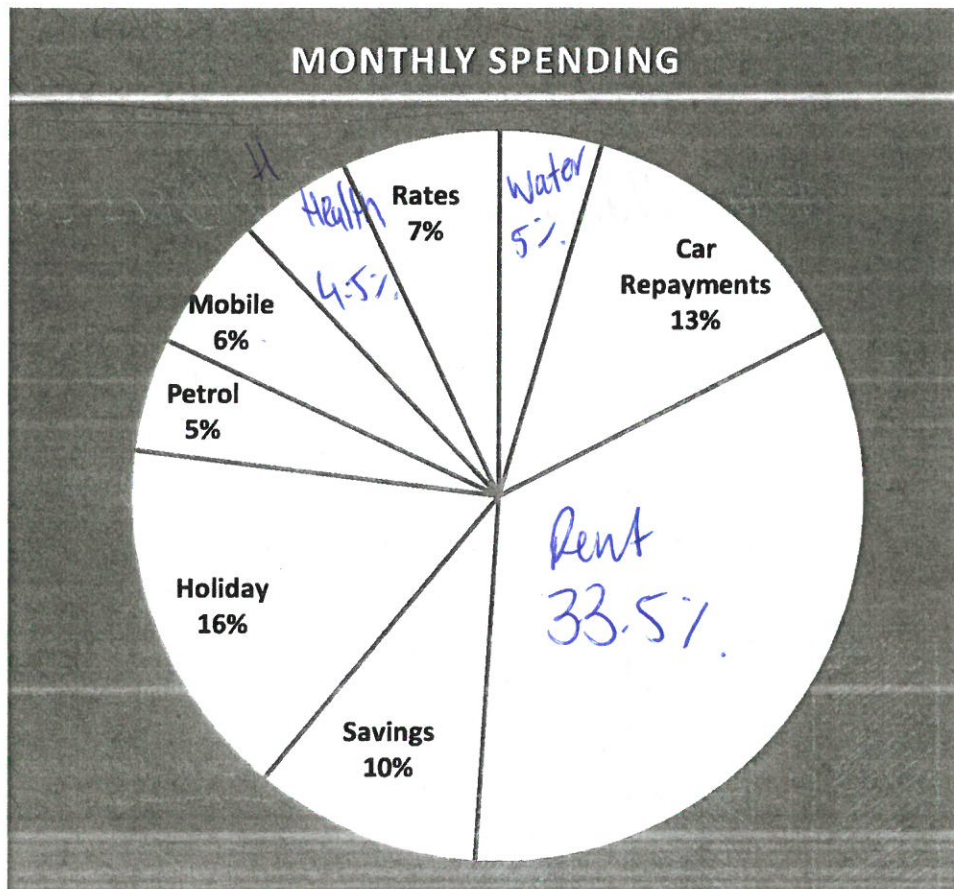
4 marks

The table below shows a breakdown of Jill's monthly expenditure.

a. Fill in the missing boxes in the table below.

SPENDINGS	%	Amount
Health	4.50%	\$170
Car Repayments	13%	\$489.84
Rent	33.5%	\$1,262
Savings	6%	\$376.80
Holiday	16%	\$602.88
Petrol	5%	\$188.40
Mobile	6%	\$226.08
Water	5%	\$188.40
Rates	7%	\$263.76
TOTAL	100.00%	\$3,768

b. Jill makes a pie chart to easily see her spending breakdown. Fill in the missing sectors using the table above.



-END OF TEST-

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