Year 8 Term 1 Math Homework

Student Name: _____	**Grade**: _____
Date: _____	**Score**: _____

Table of contents

This edition was printed on January 13, 2012.

Camera ready copy was prepared with the LaTeX2e typesetting system.

8 Year 8 Term 1 Week 8 Homework

8.1 Topic Test (Algebra)

1. Increase the sum of 12a and 3 by 6. [5]

2. Expand $4(6a + 2) - 3(2a - 5)$. [5]

3. Simplify $35a^2b \div 5a \div 3b^2$. [5]

4. Simplify $5c^2 - 3c + 3c^2 - 6c + 4b$. [5]

5. Simplify $4x^2y \times 3xy^2 \div 2x^3y$. [5]

6. Simplify $(-5a^6)^3$. [5]

7. Factorise $4a^2 + 8ab + 4b^2$. [5]

8. Expand and simplify $(3x^2 - 3)^2 - (2x^2 + 6)^2$. [5]

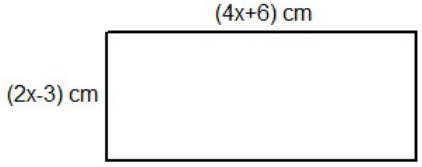
9. If a = -5, b = 6 and c = 9, find the value of $2a^2 + 3b - c$. [5]

10. Simplify $\frac{4x}{3} - \frac{3x}{4}$. [5]

11. Simplify $\frac{5x-5}{3} + \frac{4x+6}{5}$. [5]

12. Given $D = S \times T$, find S if D = 357 km and T = 4 hours and 15 minutes. [5]

13. Write an expression for the perimeter and area of the rectangle in terms of x. [5]



14. Given that $F = \frac{mv^2}{r}$, find the value of F when m = 8, v = 3 and r = -12. [5]

15. If $a = 0.15$, evaluate $2a^2 - 3a$. [5]

16. A car bought for \$2M was sold at a profit of 25%. What was the selling price? [5]

17. Simplify $\frac{x}{3} + \frac{x-2}{4}$. [5]

18. Solve $\frac{3x-1}{4} = 6$. [5]

19. Simplify $4x - 2 - \frac{2x-5}{2} + \frac{3x+2}{3}$. [5]

20. Find the pattern rule using the table given below: [5]

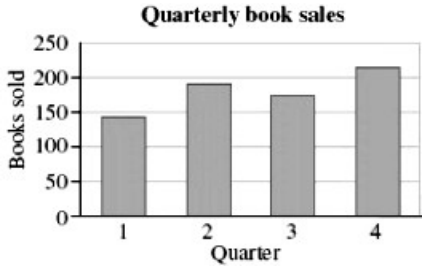
x	1	2	3	4
y	5	8	11	14

8.2 Topic 1 — Data Representation (Organising Data)

Data can be organised into a graph in order to make it easier to understand and analyse. In general, it is best to draw:

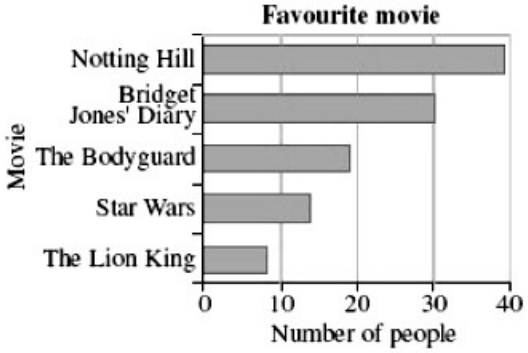
- a line graph for continuous quantitative data.
- a column graph or horizontal bar graph for discrete quantitative data.
- a sector graph, column graph, horizontal bar graph, divided bar graph, or picture graph for categorical data.

8.2.1 Column Graph as shown below:



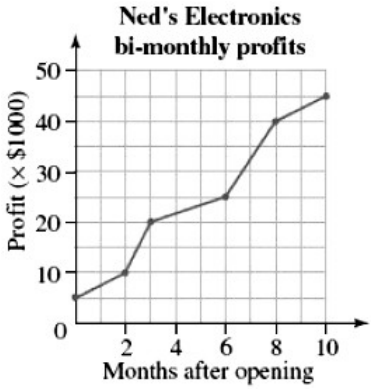
- In a column graph the data is represented by a number of vertical columns.
- The data is shown on the horizontal axis.
- The number of times each data occurs is shown on the vertical axis.

8.2.2 Bar Graph as shown below:



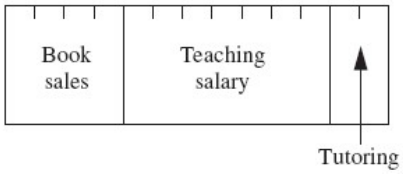
- In a bar graph the data is represented by a number of horizontal bars.
- The data is shown on the vertical axis.
- The number of times each times each piece of data occurs is shown on the horizontal axis.

8.2.3 Line Graph



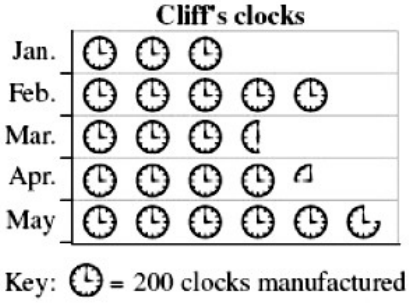
- In a line graph a number of points are plotted then joined by lines or curves.
- The trends or relationships between two variables can be shown.

8.2.4 Divided bar graph



- In a divided bar graph a rectangle or bar is divided into small rectangles or sections.
- The length of each section is in proportion to the value of the data that it represents.
- The value of the data in each section is found by measuring the length of the section then comparing it to the length of the whole rectangle.

8.2.5 Picture Graph

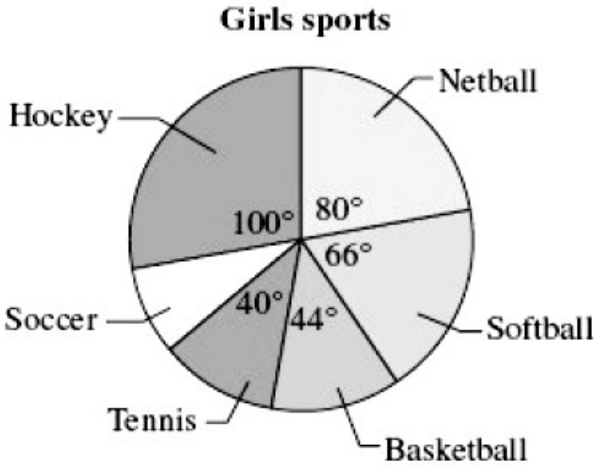


- In a picture graph easily recognisably pictures or symbols are used to represent the data.
- A key is included to explain the value of the symbol.

8.2.6 Sector Graph

- In a sector graph a circle is divided into sectors.
- The angle at the centre of each sector is in proportion to the value of the data it represents.
- The value of the data in each sector is found by dividing the angle at the centre of the sector by 360^o then multiplying that fraction by the total value of the data

Exercise 8.2.1 This sector graph shows the school sport chosen by girls at a high school.



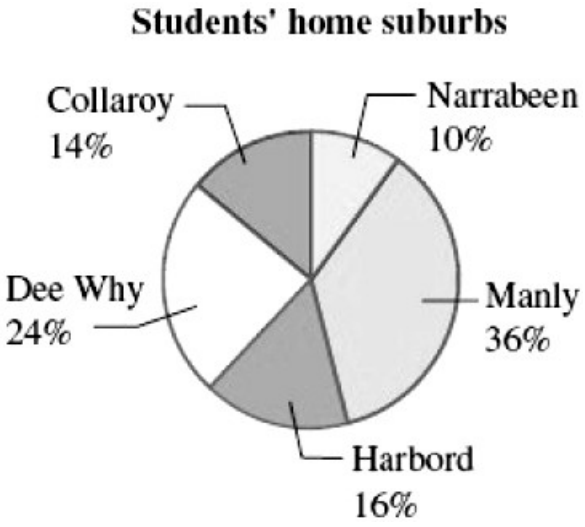
1. *Do more girls play netball or softball?*

2. *What fraction of the girls play hockey?*

3. *If there are 540 girls at the school, how many play tennis?*

4. *If 45 girls play soccer, what angle should be at the centre of the sector?*

Exercise 8.2.2 The Year 8 students at Kingscliff High School created a sector graph showing the percentage of year group who live in each surrounding suburbs.



1. *In which suburb do most students live?*

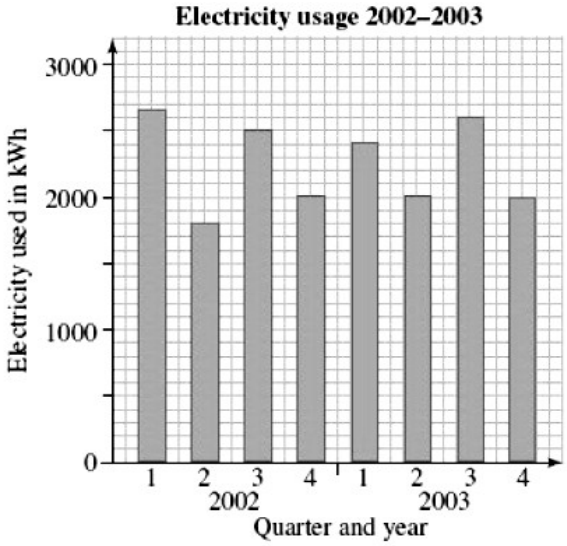
2. *What percentage of the students live in Narrabeen?*

3. *In which suburb do $\frac{6}{25}$ of the students live?*

4. *If there are 150 students in Year 8, find the number of students who live in Dee Why.*

5. *What should be the size of the angle at the centre of each sector? (Give your answer to nearest degree.*

Exercise 8.2.3 This column graph shows the electricity usage in a household over a 2 year period. The usage is in measured each quarter in kilowatt hours (kWh). The first quarter is January – March.



1. *In which quarter was the usage highest?*

2. *How many kilowatt hours of power were used in the first quarter, 2003?*

3. *Was the usage for the July – September quarter higher in 2002 or 2003?*

4. *Which quarters tend to have higher electricity usage?*

5. *Why do you think this might be?*