Year 7 Mathematics

End Term 4

33 marks

40 mins
Date

Instructions: 1. Answer all questions   2. Calculators permitted

Sample 1

Question 1 (10 marks - 1 mark each)

a) The Maths class has 11 girls and 13 boys.
   i)   What is the ratio of boys to girls?
   ii)   What is the ratio of girls to the total number in the class?

b) Write 5 : 10 as a fraction, a decimal and a percentage:

c) Simplify: **i)** 3 : 12   **ii)** 5x : 15x

d) The rose food is mixed with water in the ratio of 1 : 3. How much rose food is needed to make a mixture of 2 L?

e) What percentage is 16 marks out of 20 marks?

f) Calculate 75% of 40

g) Write 100 m 10 seconds as a rate:

h) Kiri earns a salary of $3464.15 per fortnight, how much is earned in 6 months (26 weeks)?
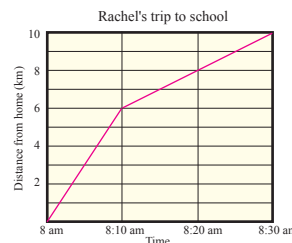
Question 2 (10 marks - 1 each)

a) Solve each of the following equations:
   a) $x + 5 = 11$ **b)** $y - 3 = 15$ **d)** $5x - 2 = 16$

b) **i)**   Complete the table.
   ii)   Draw a graph of the function.
   iii) Is the function linear or non-linear?

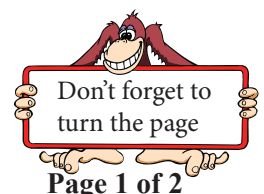| x	1	2	3	4	5
y=2x + 3					

c) Rachel lives 10 km from school. The graph shows Rachel's trip to school. Rachel was first driven to her friend's place and then they both walked to school.
   i)   How long did it take Rachel to get to her friend's place?
   ii)   Calculate Rachel's walking speed in getting from her friend's place to school.

Rachel's trip to school

d) A train is travelling at a constant speed of 60 km/h. The distance travelled is given by the function: $D = 46t$, where D is the distance in km, and t is the time in hours.
   i)   How far does the train travel in 3 hours?
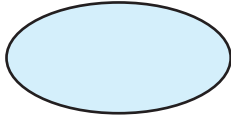   **ii)**   How long does it take the train to travel 40 km?

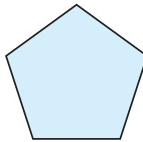## Question 3 (7 marks - 1 each)

a) What are the new coordinates after:

    i) The point P(2,5) is translated 3 units right and 2 units down?

    ii) The point P(3,1) is reflected in the x-axis?

    iii) The point P(-6,0) is rotated 90° clockwise about the origin?

b) Draw the lines of symmetry of each of the following shapes:
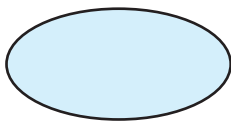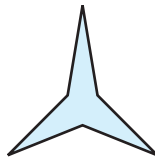
    i)   **ii)**

c) What is the rotational symmetry order of each of the following:

    a)   **b)**

Question 4 (6 marks)

Research question: Is there a relationship between the time it takes a rock to drop and the height it was dropped from?

Time (seconds)	1	2	3	4	5
Height (metres)	5	20	45	80	125

    i) Represent the data (Use a scatter plot to display the data). (2)

    ii) Describe the correlation, if any. (2)

    iii) Interpret the data and draw a conclusion related to the original research question. (2)

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Year 7 Mathematics

Instructions: 1. Answer all questions   2. Calculators permitted

Sample 2

Question 1 (10 marks - 1 mark each)

a) The Maths class has 13 girls and 10 boys.
    i) What is the ratio of girls to boys?
    ii) What is the ratio of boys to the total number in the class?

b) Write 7 : 10 as a fraction, a decimal and a percentage:

c) Simplify: **i)** 12 : 4   **ii)** 9x : 24x

d) The rose food is mixed with water in the ratio of 1 : 4. How much rose food is needed to make a mixture of 4 L?

e) What percentage is 14 marks out of 20 marks?

f) Calculate 75% of 80

g) Write $40 for 10 trees as a rate:

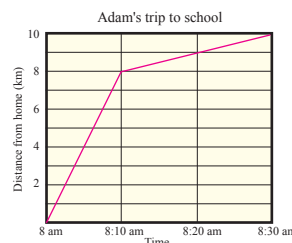**h)** Aaron earns a salary of $2763.90 per fortnight, how much is earned in 6 months (26 weeks)?

Question 2 (10 marks - 1 each)

a) Solve each of the following equations:
    a) $x + 8 = 12$ **b)** $y - 9 = 13$ **d)** $3a - 4 = 32$

b) **i)** Complete the table.
    ii) Draw a graph of the function.
    iii) Is the function linear or non-linear?

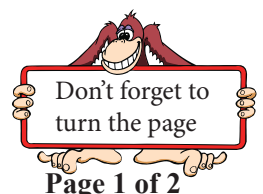| x		1	2	3	4	5
y=3x + 2						

c) Adam lives 10 km from school. The graph shows Adam's trip to school. Adam was first driven to his friend's place and then they both walked to school.
    i) How long did it take Adam to get to his friend's place?
    ii) Calculate Adam's walking speed in getting from his friend's place to school.

Adam's trip to school

Distance from home (km) / Time (8 am, 8:10 am, 8:20 am, 8:30 am)

d) A train is travelling at a constant speed of 40 km/h. The distance travelled is given by the function: $D = 40t$, where D is the distance in km, and t is the time in hours.
    i) How far does the train travel in 2 hours?
    ii) How long does it take the train to travel 60 km?
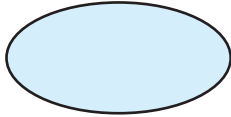
Don't forget to turn the page
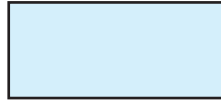
Question 3 (7 marks - 1 each)

a) What are the new coordinates after:

   i) The point P(4,2) is translated 2 units right and 2 units down?

   ii) The point P(5,1) is reflected in the x-axis?

   iii) The point P(-7,0) is rotated 90° clockwise about the origin?

b) Draw the lines of symmetry of each of the following shapes:

   i)   **ii)**

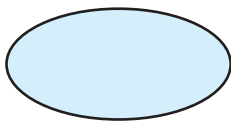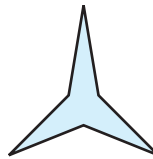**c)** What is the rotational symmetry order of each of the following:

   a)   **b)**

Question 4 (6 marks)

Research question: Is there a relationship between the voltage
                          and the current in a circuit?

Current (amps)	0.2	0.3	0.4	0.5	0.6	0.7
Voltage (volts)	30	45	60	75	90	105

   i) Represent the data (Use a scatter plot to display the data).   (2)

   ii) Describe the correlation, if any.   (2)

   iii) Interpret the data and draw a conclusion related to the original
   research question.   (2)

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