

Oakhill
COLLEGE



Year 7 MATHEMATICS

Yearly Examination

TASK 4

Tuesday, 29th October 2013

Assessment Value: 30%

Outcomes Assessed:

WMS4.1-5; MS4.1; DS4.1; NS4.3-4; SGS3.2a, 4.3

General Instructions

- Time Allowed – 60 minutes.
- Reading Time – 5 minutes
- Calculators may be used.
- Write using a blue or black pen.
- All necessary working should be shown in each question.
- All questions should be attempted.
- All questions are of equal value.
- Write your name and teacher's name at the top of each question.

Total marks – 60

Examiner – Mrs. Waters

Assessor – Mr. Lowe

Markers –

Question 1: Ms. Kenney

Question 2: Mrs. Stokes

Question 3: Miss McCluskey

Question 4: Mr. Organ

Question 5: Mr. Norton

QUESTION 1 (12 marks)

- (a) Write 0.08 as a fraction in its simplest form. 1

$$\frac{8}{100} = \frac{2}{25}$$

(1/2mk) →

- (b) Write 9.8355 correct to 2 decimal places. 1

$$9.84$$

- (c) Convert $\frac{3}{5}$ to a percentage. 1

$$\frac{3}{5} \times 100 = 60\%$$

- (d) Simplify $6 - [15 - (-3 - 2)] =$ - 14 1

$$6 - [15 - (-5)]$$

$$6 - [20] \quad (1/2 \text{ mk})$$

- (e) Simplify: $\frac{3}{4} - \frac{2}{7} =$ 2

(All working must be shown for full marks to be awarded)

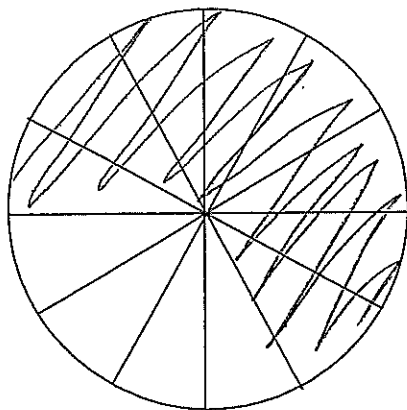
$$\frac{3}{4} - \frac{2}{7} = \frac{21}{28} - \frac{8}{28} \quad (1 \text{ mk})$$

$$= \frac{13}{28} \quad (1 \text{ mk})$$

Question 1 continues over the page.

- (f) Shade $\frac{2}{3}$ of the following shape.

1



Any 8 sectors
coloured in
(1 mk)

- (g) Which of the following is the largest number:

1

$$\frac{2}{5}, 0.0401, 4\%, \frac{43}{100}, 0.445$$

0.4 0.0401 0.04 0.43 , 0.445

(award $\frac{1}{2}$ mk if only
one mistake)

- (h) Write the word TRUE or FALSE for the following:

- (i) The quotient of 18 and 6 is 3 True (1) 1
- (ii) $-7 > -6$ False (1) 1

- (i) Complete the following:

1

$$1\frac{1}{2} \times \boxed{} = 4$$

$$4 \div 3\frac{1}{2} = \frac{4}{1} \times \frac{2}{3} = \frac{8}{3} \text{ or } 2\frac{2}{3}$$

either answer.
(1 mk)

- (j) Which two numbers have a difference of 2.5?

1

-3, -2.5, -2, -1.5, -1, -0.5

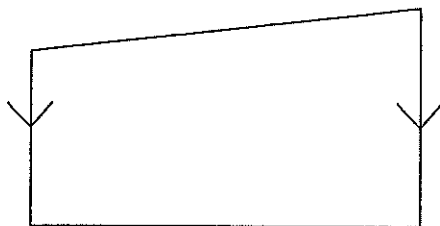
-3 and -0.5 (1)

End of Question 1

QUESTION 2 (12 marks)

(a) Name these shapes (as descriptively as possible):

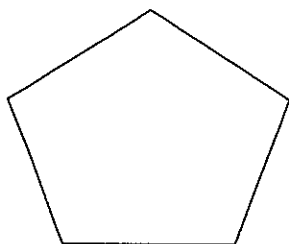
(i)



1

Trapezium

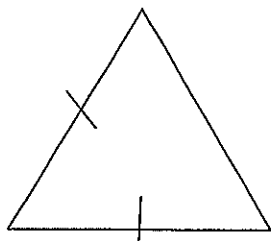
(ii)



1

Pentagon

(iii)



1

Isosceles Triangle

(b) Write a sentence (you may also draw a diagram) to explain each of the following geometrical terms.

(i) Bisect - to cut in half

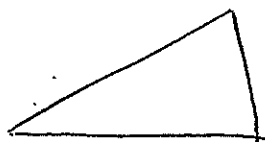
1

(ii) Perpendicular - lines that meet at right angles

1

(c) Draw an acute angled triangle.

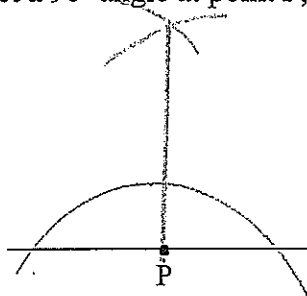
1



Question 2 continues over the page.

- (d) Construct a 90° angle at point P, using your compass and ruler only.

2



- must show arcs to
award 2 marks
- award 1 if, perpendicular
line is not drawn at P.

- (e) Complete the table, by placing a tick to show which quadrilaterals have the properties listed below:

2

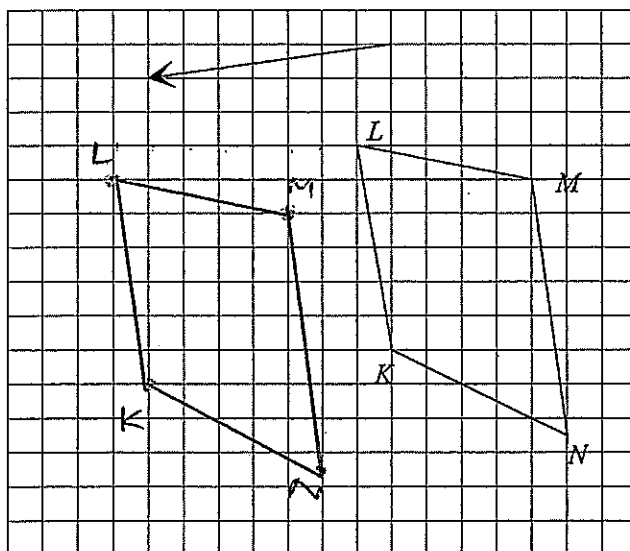
Property	Trapezium	Parallelogram	Square	Rhombus	Kite
Both pairs of opposite sides equal		✓	✓	✓	
Only two axes of symmetry				✓	

(1)

(1)

- (f) Draw the image of $LMNK$ when it is translated in the distance and direction of the arrow. Label the image $L'M'N'K'$.

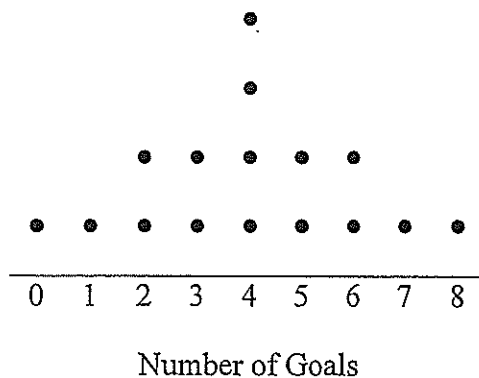
2



End of Question 2

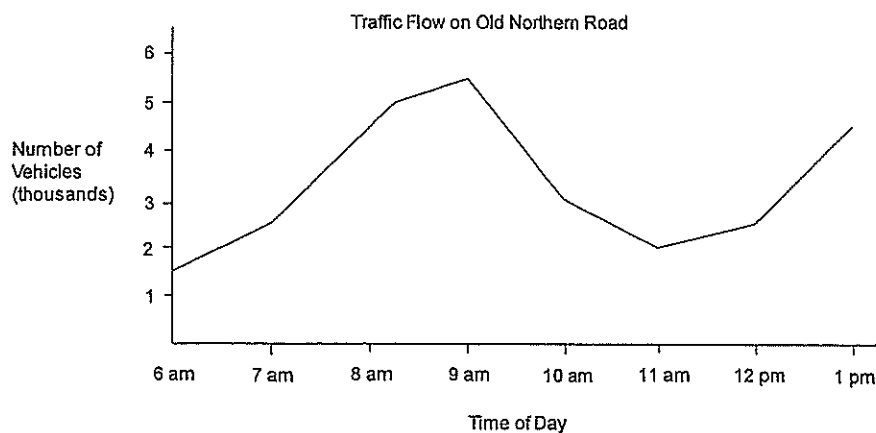
QUESTION 3 (12 marks)

- (a) The dot plot shows the number of goals per game scored by Joanne's team during a hockey season.



- (i) How many games were played? **16 (1mk)** 1
- (ii) How many goals were scored in total? **64** 1
- (iii) What was the most common number of goals scored in a game? **4** 1

- (b) The following graph displays the traffic flow on Old Northern Road.

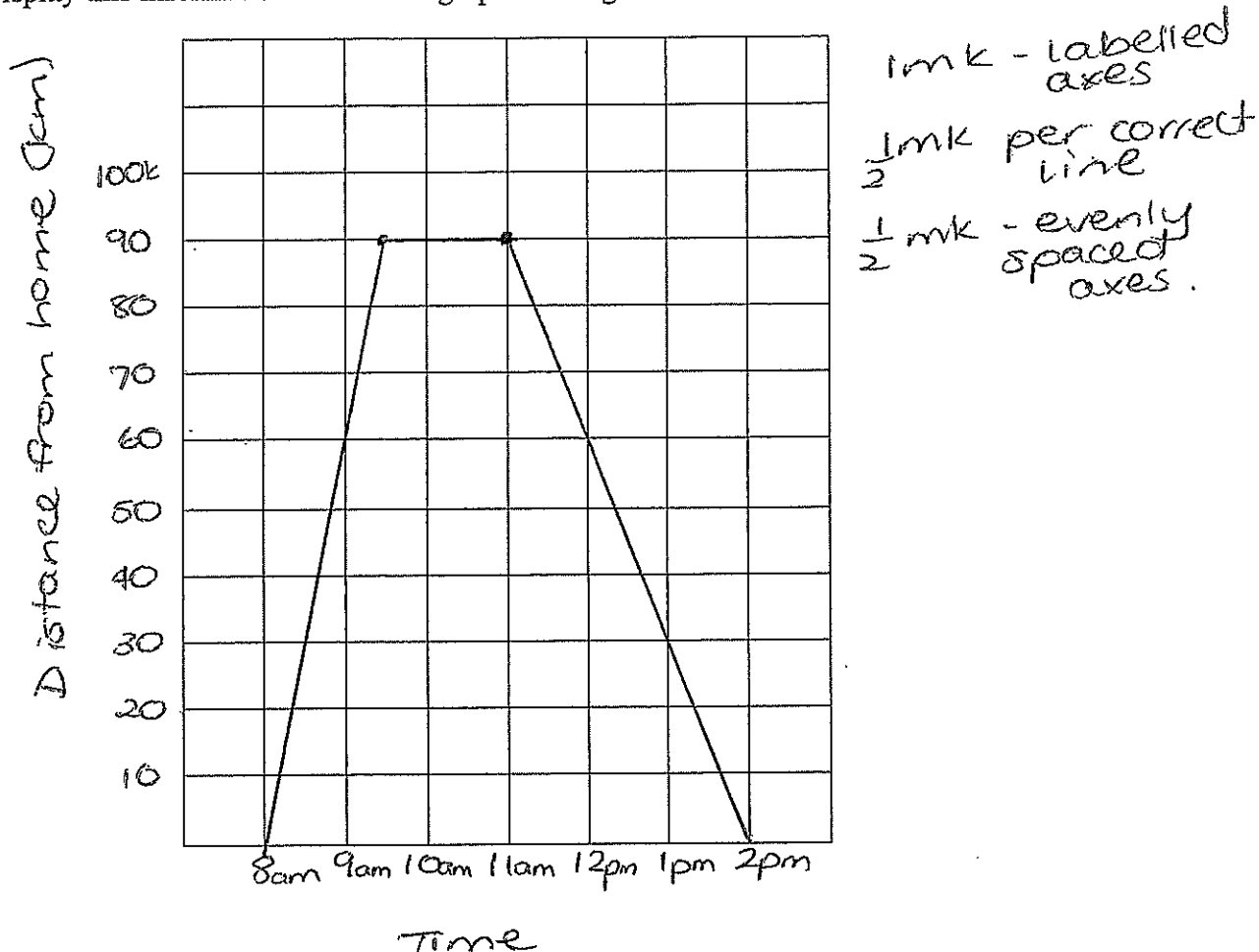


- (i) How many vehicles used the road at 11.00 a.m? **2000** 1
- (ii) At what time of the day did traffic flow reach its peak? **9am** 1
- (iii) During the time surveyed, when was the number of vehicles at its lowest? **6am** 1

Question 3 continues over the page.

- (c) Corey drives to his friends place 90km away. He leaves home at 8am and arrives at 3 his friends place at 9:30am. He stays there for an hour and a half, and then rides his bicycle home, arriving at 2pm.

Display this information on a travel graph on the grid below.



- (d) The following graph shows the types of pets owned by the 240 students in year 7 this year.

Mice	None	Dogs	Fish	Cats
------	------	------	------	------

- (i) Name the type of graph illustrated above. 1
Divided bar graph
- (ii) Which pet type was most popular? 1
Dogs
- (iii) How many students **did not** have pets? 1

$$\frac{1.5}{10} \times 240 = 36$$

allow 1.4 - 1.6 cm (34 - 38 students) with working

End of Question 3

QUESTION 4 (12 marks)

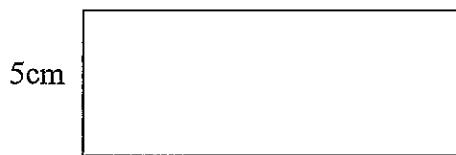
- (a) What is the perimeter of a regular hexagon with side length 8cm?

1

$$6 \times 8 = 48 \text{ cm}$$

- (b) Calculate the perimeter of the following shape in centimetres.

2



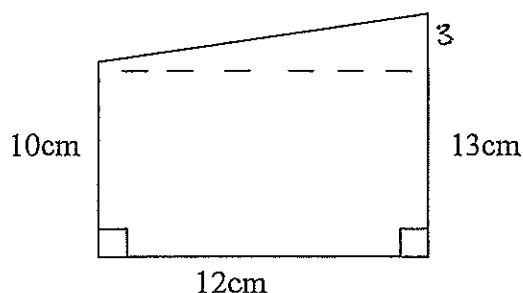
Not to scale

$$80 \text{ mm} \rightarrow = 8 \text{ cm (1mk)}$$

$$P = 5 + 8 + 5 + 8 = 26 \text{ cm (1mk)}$$

- (c) Find the area of the following shape.

2



Not to scale

$$A_{\text{rect}} = 12 \times 10 = 120 \quad \left(\frac{1}{2}\right)$$

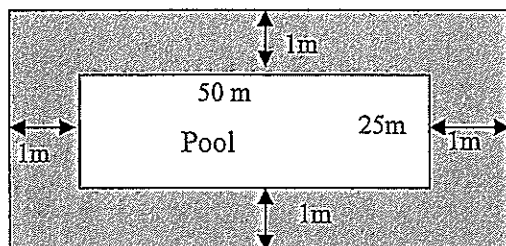
$$A_{\text{triangle}} = \frac{1}{2} \times 3 \times 12 = 18 \quad (1)$$

$$\text{Total area} = 138 \text{ cm}^2 \quad \left(\frac{1}{2}\right)$$

- (d) A rectangular swimming pool is 50 metres in length and 25 metres in width. A footpath 1 metre wide is to be constructed entirely around the outside of the swimming pool.

2

Not to scale



$$A_{\text{pool}} = 50 \times 25 = 1250 \text{ m}^2 \quad \left(\frac{1}{2}\right)$$

$$A_{\text{pool + path}} = 52 \times 27 = 1404 \quad \left(\frac{1}{2}\right)$$

$$A_{\text{Footpath}} = 1404 - 1250 = 154 \text{ m}^2 \quad \left(\frac{1}{2}\right)$$

Find the area of the footpath.

Question 4 continues over the page.

(e) Floor tiles measure 30cm by 30cm.

(i) Calculate the area of 1 tile?

1

$$30 \times 30 = 900 \text{ cm}^2$$

$$\text{OR}$$

$$0.3 \times 0.3 = 0.09 \text{ m}^2$$

(ii) How many tiles would be needed to cover the floor of a room 6m by 3.6m?

2

$$6 \times 3.6 = 21.6 \text{ m}^2 \text{ (1)}$$

$$21.6 \div 0.09 = 240 \text{ tiles (1)}$$

3.6m = 12 tiles

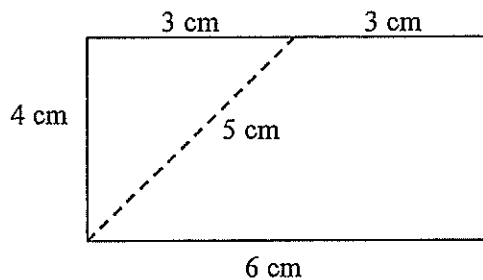
6m = 20 tiles

(1)

OR

20 tiles $\times$ 12 tiles = 240 tiles (1)

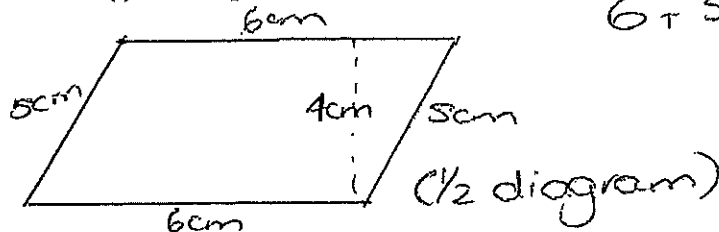
(f) This 4 by 6 centimetre rectangle is cut into 2 pieces along the dotted line as shown.



Not to scale

Find the perimeter of the figure found when the two pieces are rearranged to form:

(i) A parallelogram

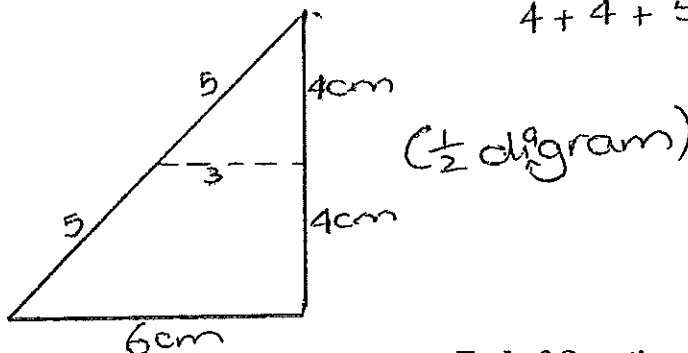


$$6 + 5 + 6 + 5 = 22 \text{ cm.}$$

(1/2 correct ans)

(ii) A right angled triangle.

1



$$4 + 4 + 5 + 5 + 6 = 24 \text{ cm}$$

(1/2 correct ans)

End of Question 4

Student's Name: _____ Teacher's Name: _____

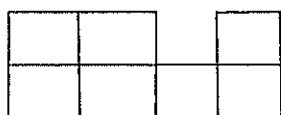
QUESTION 5 (12 marks)

- (a) Mr Haroldson ate $\frac{1}{3}$ of a pie. He gave each of his two children half the amount he ate. What fraction of the pie was left? 1

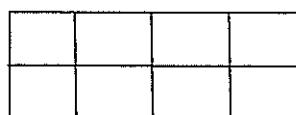
$$\text{children} = \frac{1}{3} \times \frac{1}{2} = \frac{1}{6}$$

$$1 - \frac{1}{3} - \frac{1}{6} - \frac{1}{6} = \frac{1}{3} \text{ pie left (1)}$$

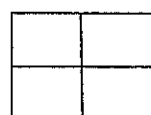
- (b) Sketch the object represented by these views: 2



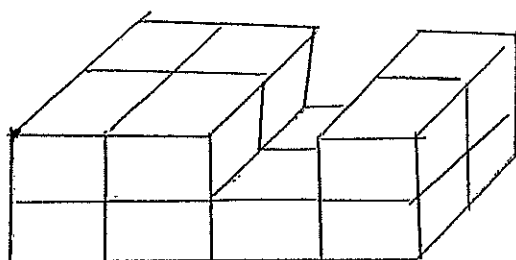
Front



Top



Right-side



2 marks - correct.
1 mark if slice not cut out.

- (c) Three pupils gave their answers to a problem as $5\frac{1}{2}$, $5\frac{3}{4}$, and $5\frac{3}{5}$. 1

If the correct answer was $5\frac{7}{10}$, which of the pupil's answers was the closest?

$$\begin{aligned} 5.7 - 5.5 &= 0.2 \\ 5.75 - 5.7 &= 0.05 \\ 5.7 - 5.6 &= 0.1 \end{aligned}$$

$5\frac{3}{4}$ (1 mk correct)

- (d) In a class test Billy worked out he scored 70%, the test was out of 80.

- (i) What mark did he get? 1

$$0.7 \times 80 = 56 \quad (1)$$

- (ii) It was later realised that the test was actually out of 90. What percentage did Billy really achieve? 1

$$\frac{56}{90} \times 100 = 62.2\% \quad (1)$$

Question 5 continues over the page.

- (e) The digits 1, 3, 4, 5 and 7 are to be placed in the boxes. Each number is used only once.

$$\boxed{}\boxed{} \times \boxed{}\boxed{}\boxed{}$$

- (i) How can the remaining numbers be placed in the boxes so that the numbers multiply to give 6751. 1

$$\boxed{4}\boxed{3} \times \boxed{1}\boxed{5}\boxed{7}$$

(1mk if correct)

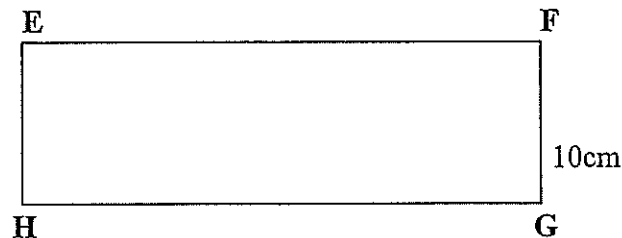
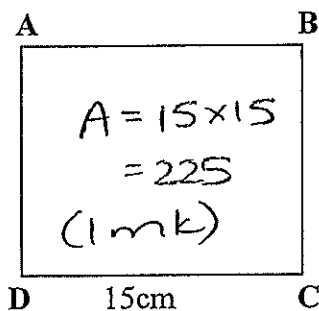
($\frac{1}{2}$ mk if found '3' in correct position)

- (ii) How can the numbers be placed to give the largest possible product. 1

$$\boxed{7}\boxed{3} \times \boxed{5}\boxed{4}\boxed{1} = (39493)$$

(1mk)

- (f) The square ABCD and rectangle EFGH have the same area. What is the length of EF (correct to 1 decimal place)? 2



$$10 \times HG = 225$$

$$HG = 22.5\text{cm} \quad (1\text{mk})$$

- (g) If $\frac{4}{3} \times \frac{5}{4} \times \frac{6}{5} \times \frac{7}{6} \times \dots \times \frac{a}{b} = 4$, find the value of a and b . 2

$$\frac{a}{3} = 4$$

$$a = 12 \quad (1\text{mk})$$

Following pattern $b = 11$ (1mk).

End of Question 5

END OF EXAMINATION

