Solutions.

1 to 8 → MB
9 to 14 → MV
16 ~~15~~ to 22 → Lee

Carlingford High School

Mathematics

Year 7 Term 4 Examination
2019

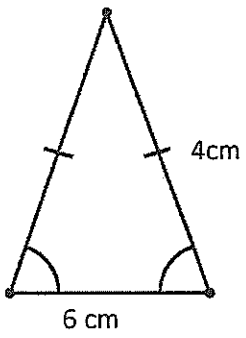
Name: _____ Class: 7 ____

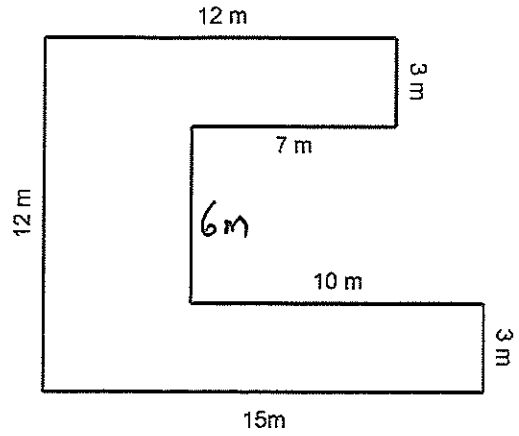
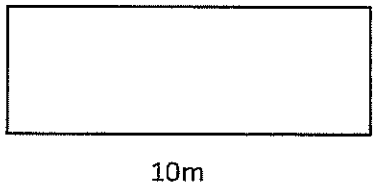
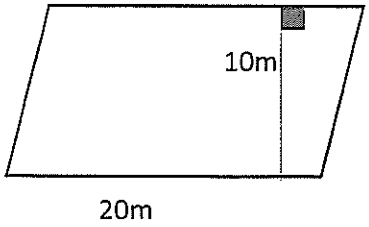
Time allowed: 50 minutes

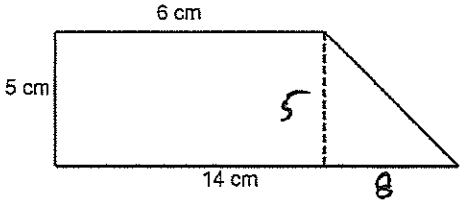
- Show all necessary working.
- Answer all questions in the spaces provided.
- Marks may be deducted for careless or untidy work.
- Complete the exam in blue or black pen.
- **Calculators are not allowed.**

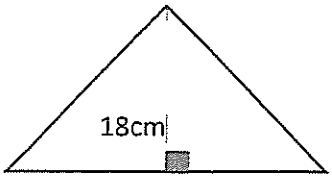
Topic	Length Area and Volume	Data	Problem Solving	Total
Mark	/31	/15	/2	/ 48

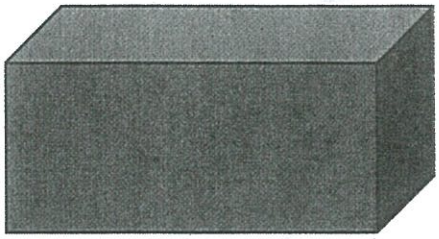
Length, Area and Volume (31 marks)

	Question	Marks
1.	Complete the following: a. 1 km = 1000 m b. 200 mm = 20 cm	2
2.	Please circle the metric unit that is most appropriate to measure the a. length of a fingernail: Millimetre / Metre b. height of a door: Metre / Kilometre	2
3.	Find the perimeter of the following triangle.  6+4+4 = 14cm	1

4.	Find the perimeter of the following composite shape  $12+12+3+7+6+10+3+15$ $= 68\text{m}$	2
5.	Fill in the blanks: a. 1 ha = 10,000 m^2 b. 256 cm^2 = .0256 m^2 c. 8.6 m^2 = 8600000 mm^2	3
6.	Find the area of the rectangle with length 10m and width 5m:  $5\text{m} \times 10\text{m}$ 50m^2	1
7.	Find the area of the following parallelogram with base 20m and perpendicular height 10m:  $A = b \times ht$ 20×10 200m^2	1

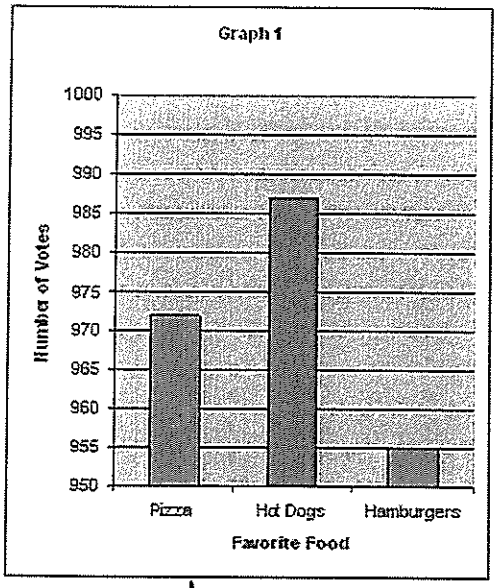
8.	Find the area of the following composite shape  Area of rectangle $5 \times 6 = 30 cm^2$ Area of triangle $\frac{1}{2} \times 8 \times 5$ $20 cm^2$ Total area $= 30 + 20$ $50 cm^2$	3
9.	a. Sarah buys carpet tiles, which are square and have a length of 40cm. What is the area of one carpet square tile in square metres? $s = 40cm$ $= .40m$ Area $= .40 \times .40$ $= 0.1600 m^2$ $= 0.16 m^2$	2
	b. Sarah's bedroom is rectangular and measures 2m by 4m. How many carpet square tiles are needed to cover Sarah's bedroom floor? Area of bedroom $= 2m \times 4m$ $8 m^2$ No. of tiles $= \frac{8}{0.16}$ $= 50$ tiles.	2

10.	A triangle has an area of 27 cm^2 and a perpendicular height of 18 cm. Find the length of its base.  $A = \frac{1}{2} b \times ht$ $27 = \frac{1}{2} \times b \times 18$ 9 $27 = 9b$ $\frac{27}{9} = b$ $= 3cm$	2
11.	What unit of measurement would be most appropriate for measuring the volume of a classroom? m^3 or cubic metres	1
12.	The volume of a table with drawers is 306000 cm^3. Convert into cubic metres. Volume (cubic metres) $= \frac{306000}{1000000}$ $= 0.306 m^3$	1
13.	A jug holds 3 L of water. How many full 250ml glasses could the jug fill? 3L = 3000ml no. of glasses = 3000 ÷ 250 = 12	2

14.	Convert - a. 1kL = 1000 L b. 7.2 kL = 7200000 mL c. 1L = _____ cm^3	3
15.	Sneha's swimming pool is a rectangular prism 8m long, 4m wide and 1.5m deep  a. Find the volume of the swimming pool $V = 8m \times 4m \times 1.5m$ $= 8 \times 6$ $= 48m^3$ b. How many litres of water would be needed to fill the pool? $48m^3 = 48kL$ $= 48000\ L$	3

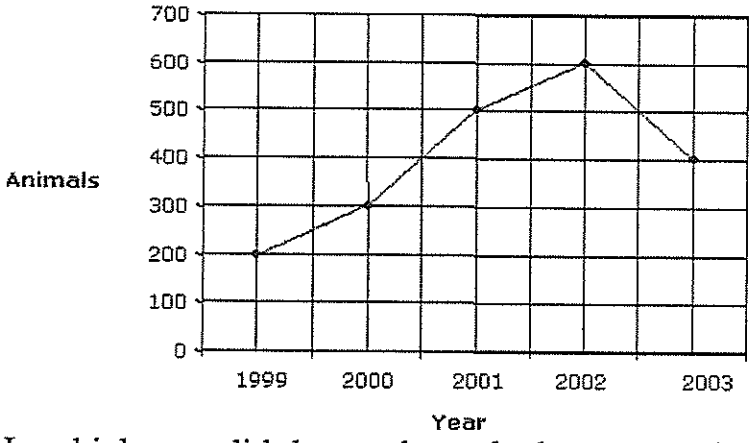
DATA (15 marks)

16. Students were asked to choose which they liked best out of pizza, hot dogs and hamburgers. The graph represents the results. Why is it misleading? 1



Vertical axis does not start with zero.

17. The graph below shows the total number of animals in a zoo. 2



a) In which year did the zoo have the largest number of animals?

2002

b) From 1999 to 2002, what was the increase in the number of animals in the zoo?

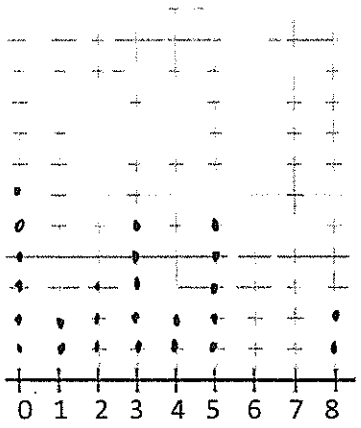
600 − 200

400

18. A group of men were surveyed on the time they spent eating their breakfast:

Minutes	0	1	2	3	4	5	6	7	8
People	6	2	3	5	2	5	0	0	2

a. Display the above data as a dot plot



2

b. What is the most common number of minutes spent on eating breakfast?

0 min.

1

c. Which score is an outlier?

8

1

19. Ms. Turner reported the test results of some students at her school.

1	0 0 3
2	2 2
3	6 7
4	1 2 3 4
5	2 6 8 8 8
6	6 7

a. What is the name given to this type of plot? 1

stem and leaf plot

b. How many test scores were reported? 1

18

c. What is the lowest score? 1

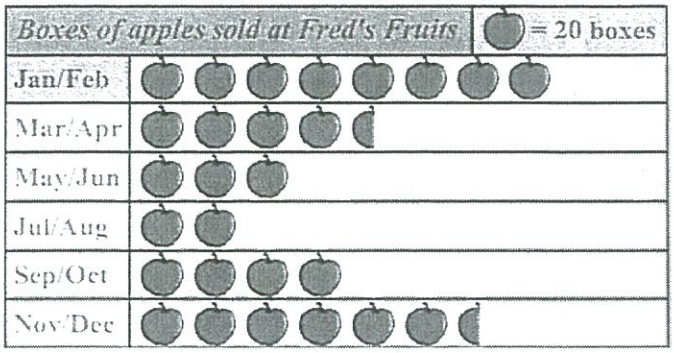
10

d. Which score occurred the most? 1

58

e. Where are the scores clustered? 1

In the 40's and 50's

20.	Following is a graph showing the number of apple boxes sold at Fred's Fruits.  a. What type of graph is this? Picture graph	1
	b. How many boxes of apples were sold in March and April? 90 Need working. 4½ (1)	2

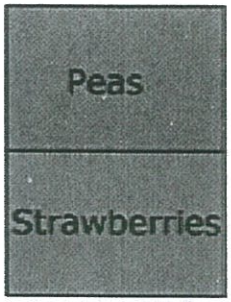
PROBLEM SOLVING (2 Marks)

21.	A rectangle has an area of 24 square metres with whole number dimensions .What is the smallest perimeter it can have?	1

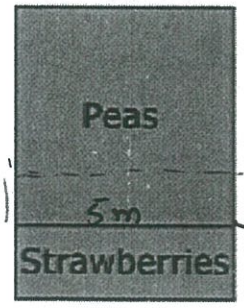
Factors of 24	Perimeter.
1 X 24	24+24+1+1 = 50
2 X 12	2+12+2+12 = 28
3 X 8	3+8+8+3 = 22
4 X 6	4+6+4+6 = 20

Lowest Perimeter is 20.

22	Yasmin has beds for peas and strawberries in her garden, as shown in the diagram on the right. This year, Yasmin changed the boundary by lengthening one of its sides by 3m resulting in a square pea bed. As a result of this, the area of the strawberry patch was reduced by $15m^2$ What was the original area of the pea bed, before the change in the boundary?	1



original boundary



New boundary

$15m^2$

Area of ~~new~~ increased patch = $15m^2$

Length ~~width~~ of the patch = 3m

width = 5m

New Pea patch is a square 3m

thus new length = w = 5m

original length = 5m − 3m = 2m

Original area = 5m × 2m = $10m^2$