



Year 9 Mathematics

End Term 2

45 marks

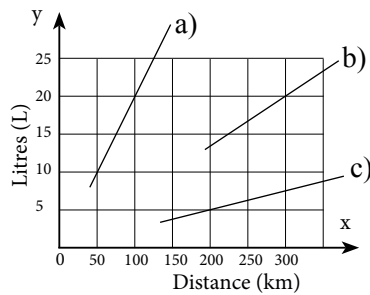
45 mins

Date

Instructions: 1. Answer all questions 2. Calculators permitted

Question 1 (11 marks)

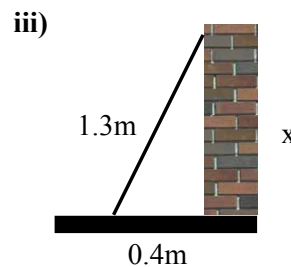
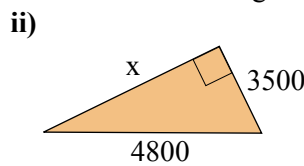
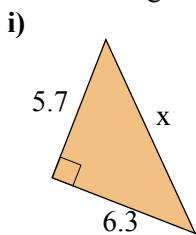
- a) Simplify the following ratios: i) $15 : 5$ ii) $1.8 : 1.5$ (1,1)
- b) Which of the following pairs of ratios are in proportion?
 i) $6 : 2$ and $9 : 3$ ii) Travel 300 km in 4 hours and travel 450 km in 6 hours. (1,1)
- c) Draw a graph and write a rule: The 200 acre paddock yielded 400 tonnes of corn. (2)
- d) Assuming proportionality, If \$AU1 can be exchanged for \$US1.10, how many Australian dollars can be exchanged for \$US900? (1)
- e) It will cost \$60 per person if there are 25 people on the charter bus. Assuming inverse proportion, how many people would be needed to reduce the cost per person to \$50? (1)
- f) From the graph, find the litres per 100 km fuel consumption for each vehicle. (3)



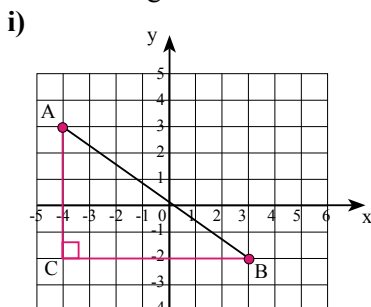
Sample 1

Question 2 (12 marks - 2 marks each)

- a) A rectangular gate measures 1.4 m by 2.5 m with a 2.79 m diagonal. Is the gate square? If not, should the diagonal be longer or shorter?
- b) Find the length of the unknown in each of the following:



- c) Find the length of AB.

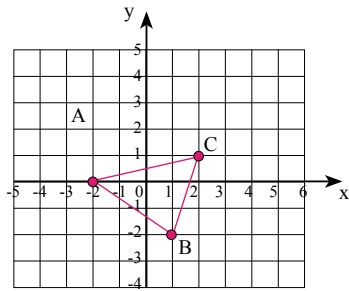


- ii) $A(1,-2), B(3,3)$

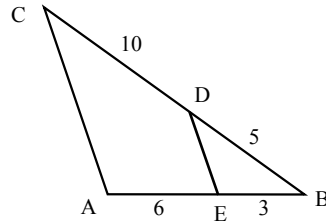


Question 3 (10 marks - 2 marks each)

a) Enlarge the original triangle by a scale factor of two.

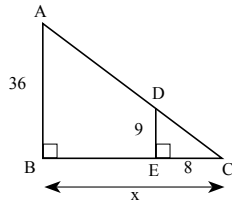


b) Prove that $\triangle ABC \sim \triangle EBD$

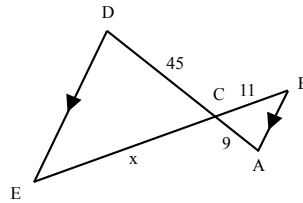


c) Find the length of the unknown.

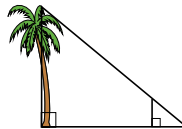
i)



ii)



16 A 1.5 metre stick casts a 0.65 metre shadow at the same time a tree casts a 3.6 m shadow. What is the height of the tree?



Question 4 (12 marks)

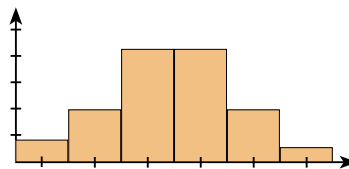
a) Calculate the mean, median, and range: Car speed: 56, 45, 54, 55, 53, 62, 49, 51, 72 (2)

b) Describe the following data distributions using terms such as skew, symmetrical, or bimodal.

i)

Pallets (3 2 is 32)	
2	0 2 4 5
3	2 3 5 5 6 9 9
4	4 6
5	2

ii)



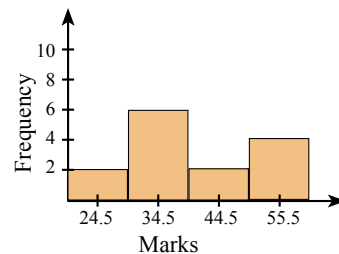
(1,1)

c) Find the mean, median, and range of each of the data displays:

i)

Test scores (1 8 is 18)	
0	7
1	8 9
2	4 5 5 6 8 8 8

ii)



(2,2)

d) Data was collected on daily student absence data during the flu season before and after a handwashing campaign. Analyse the data and make a comment.

Absences (before)						Absences (after)					
41	46	55	64	57	66	45	47	52	49	57	52
53	57	44	60	47	49	45	44	43	41	43	31
52	41	32	35	33	24	38	33	36	27	33	23
35	20					30	21				

(4)



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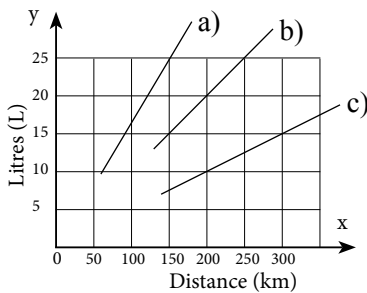
45 mins

Date

Instructions: 1. Answer all questions 2. Calculators permitted

Question 1 (11 marks)

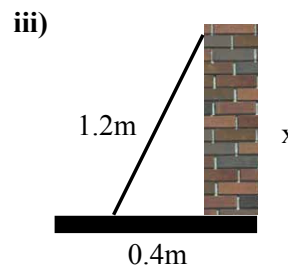
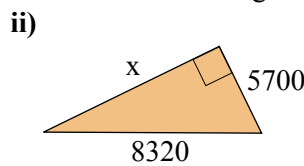
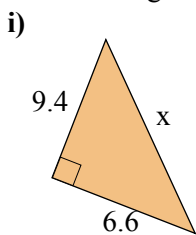
- a) Simplify the following ratios: i) 6 : 9 ii) 1.8:1.5 (1,1)
- b) Which of the following pairs of ratios are in proportion?
 i) 5:2 and 15:6 ii) Load 12 t in 4 hours and load 18 t in 6 hours. (1,1)
- c) Draw a graph and write a rule: Sound can travel 3.4 km in 10 seconds . (2)
- d) Assuming proportionality, If \$AU1 can be exchanged for \$US1.07, how many US dollars can be exchanged for \$AU450? (1)
- e) If 10 people can build a house in 30 days, how long would it take 15 people to build the same house (assuming inverse proportion)? (1)
- f) From the graph, find the litres per 100 km fuel consumption for each vehicle. (3)



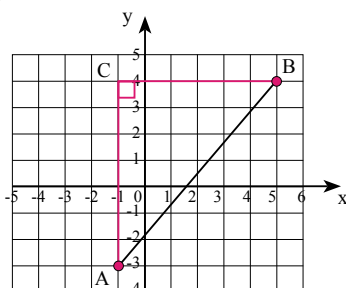
Sample 2

Question 2 (12 marks - 2 marks each)

- a) A rectangular gate measures 1.4 m by 2.5 m with a 2.79 m diagonal. Is the gate square? If not, should the diagonal be longer or shorter?
- b) Find the length of the unknown in each of the following:

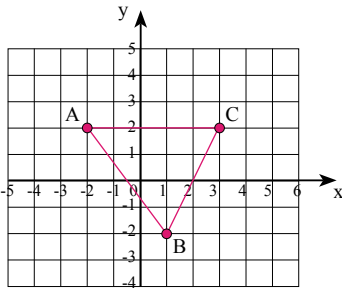


- c) Find the length of AB.
 i) ii) A(4,-2), B(5,2)

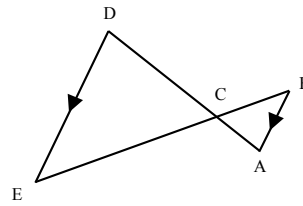


Question 3 (10 marks - 2 marks each)

a) Enlarge the original triangle by a scale factor of two.

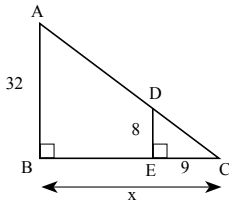


b) Prove that $\triangle ABC \sim \triangle EBD$

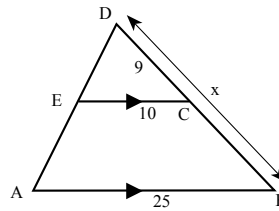


c) Find the length of the unknown.

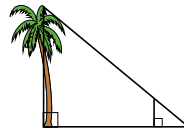
i)



ii)



16 A 1.8 metre stick casts a 0.83 metre shadow at the same time a tree casts a 2.9 m shadow. What is the height of the tree?



Question 4 (12 marks)

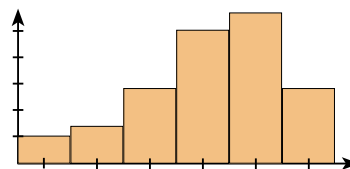
a) Calculate the mean, median, and range: Annual Wages: \$47k, \$87k, \$54k, \$62k, \$73k. (2)

b) Describe the following data distributions using terms such as skew, symmetrical, or bimodal.

i)

Rent (35 5 is 355)	
26	0 5 5
27	0 0 5 5 5 5
28	0 5 5
29	5

ii)



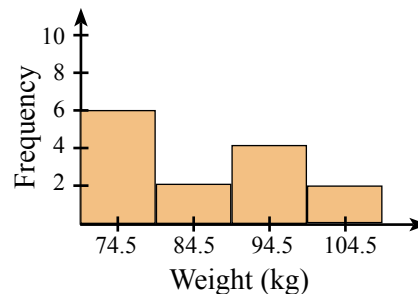
(1,1)

c) Find the mean, median, and range of each of the data displays:

i)

Test scores (8 2 is 82)	
6	3
7	0 5
8	1 2 2 7 8
9	6

ii)



(2,2)

d) Investigating the use of heat treatment on sprains, a research scientist collected the following data on the time, in days, taken for a muscle sprain to heal. Analyse the data and make a comment.

Sprains (with heat treatment)						Sprains (without treatment)					
15	15	14	20	16	18	21	21	20	22	16	25
15	15	18	18	16	12	17	20	19	22	19	20
18	16	17	16	19	14	18	19	22	17	16	20

(4)