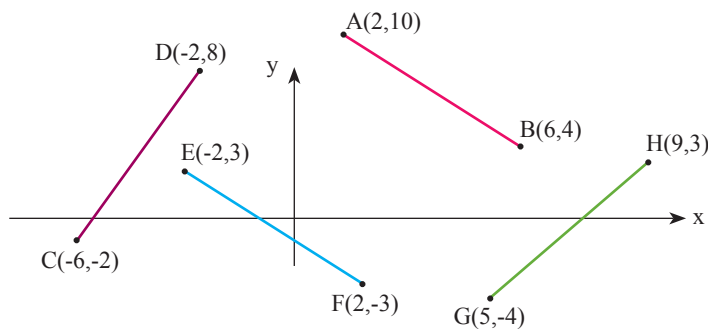




Question 1 (8 marks)

- a) Find the gradient of each of the following lines (not to scale) and thus show which lines are parallel or perpendicular:



Sample 1

- b) Which pairs of lines are parallel and which are perpendicular:

i) $y = x + 3$ and $y = x - 2$

ii) $y = 2x - 3$ and $2y - 4x + 1 = 0$

- c) If the gradient of the line segment A(-1,4), B(x,-3) is 2, what is the value of x?

- d) What is the value of b if A(-1,-2), B(5,-1), and C(3, b) are collinear?

(3)

(2)

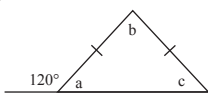
(1)

(2)

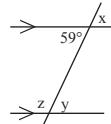
Question 2 (8 marks - 2 marks each)

- a) Find the value of the unknowns. Show all working:

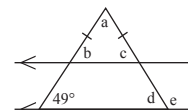
i)



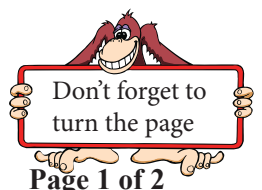
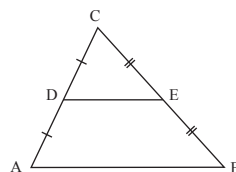
ii)



iii)



- b) Prove that the line from the midpoint of a side of a triangle and parallel to another side, bisects the third side.



Question 3 (4 marks)

Global mean sea level set to base level of 0 mm in 1990 is shown in the table.

- Draw a scatterplot of the data.
- Describe the relationship as suggested by the scatterplot.
- Use the scatterplot to estimate the sea level in 2015.
- What confidence might you have in your estimation?

Global mean sea levels	
Year	Sea level (mm)
1990	0
1993	10
1996	18
1999	25
2002	38
2005	49
2008	54
2011	65

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Did you find your silly mistakes?





Year 10 Mathematics

End Term 4

20 marks

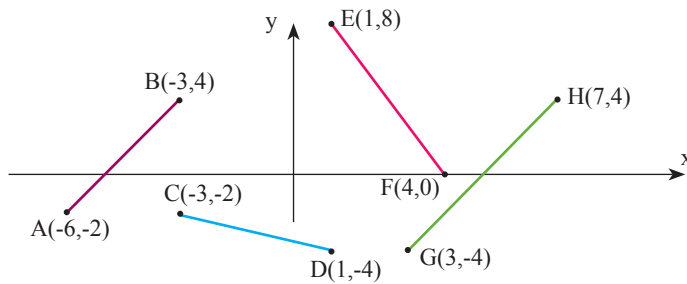
45 mins

Date

Instructions: 1. Answer all questions 2. Calculators permitted

Question 1 (8 marks)

- a) Find the gradient of each of the following lines (not to scale) and thus show which lines are parallel or perpendicular:



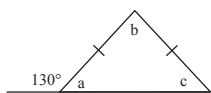
Sample 2

- (3)
- b) Which pairs of lines are parallel and which are perpendicular:
- i) $y = 2x - 3$ and $3y - 6x + 1 = 0$
- ii) $y = -4x + 1$ and $y = 0.25x + 3$
- (2)
- c) If the gradient of the line segment A(3,4), B(a,-2) is 1, what is the value of a?
- (1)
- d) What is the value of b if A(1,2), B(-3,-2), and C(2, b) are collinear?
- (2)

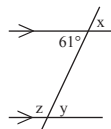
Question 2 (8 marks - 2 marks each)

- a) Find the value of the unknowns. Show all working:

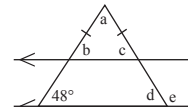
i)



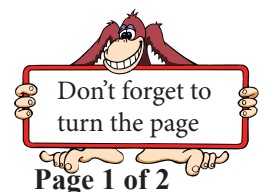
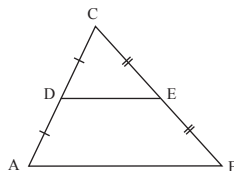
ii)



iii)



- b) Prove that the line joining the midpoints of two sides of a triangle is parallel to the third side.



Question 3 (4 marks)

The value of Australian exports to China is shown in the table.

- a) Draw a scatterplot of the data.
- b) Describe the relationship as suggested by the scatterplot.
- c) Use the scatterplot to estimate the value of exports in 2015.
- d) What confidence might you have in your estimation?

Value of Australian exports to China	
Year	\$Abillion
2006	20
2007	25
2008	30
2009	45
2010	60
2011	75

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Did you find your silly mistakes?

