HW 2324_F3_CH8_Coordinate Geometry of Straight Lines

Form Three Mathematics Test (2023–2024)

Ch.8 Coordinate Geometry of Straight Lines

Class: F . 3 ( ) Name: _____ ( )

Time Allowed: 30 minutes

Date: 8/3/2024

Mark	**/31**	**Class Average**	
Parent's Signature:			

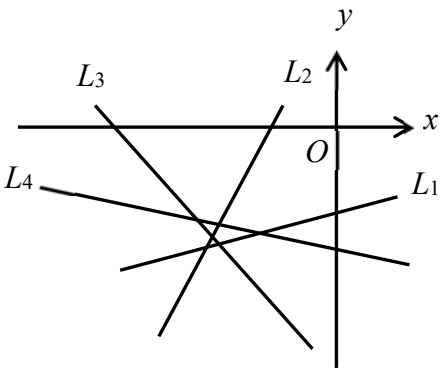
Unless specified, the figures are not necessary drawn to scale.

Section A: Multiple Choice (12 marks)

Put the best answer in the spaces provided in the box below.

Question	1	2	3	4	5
Answer					

1. In the figure, L_1, L_2, L_3 and L_4 are straight lines. If m_1, m_2, m_3 and m_4 are the slopes of L_1, L_2, L_3 and L_4 respectively, which of the following must be true?



A. $m_1 > m_2 > m_3 > m_4$

B. $m_1 > m_2 > m_4 > m_3$

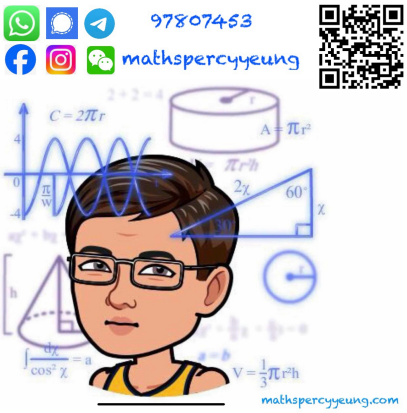
C. $m_2 > m_1 > m_3 > m_4$

D. $m_2 > m_1 > m_4 > m_3$

2. The coordinates of the points A and B are $(c, -6)$ and $(9, d)$ respectively. If the coordinates of the mid-point of AB are $(1, -4)$, then c =

A. -5. B. 5.

C. -7. D. 7.

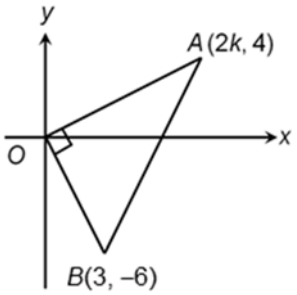


3. $P(9, -6)$ and $Q(-2, -5)$ are two points on a rectangular coordinate plane. If R is a point on the x-axis such that $PR = QR$, then the x-coordinate of R is

A. -4. B. 0.

C. 1. D. 4.

4. In the figure, the origin O, $A(2k, 4)$ and $B(3, -6)$ are the vertices of a triangle and $\angle AOB = 90°$. Find the length of AB.



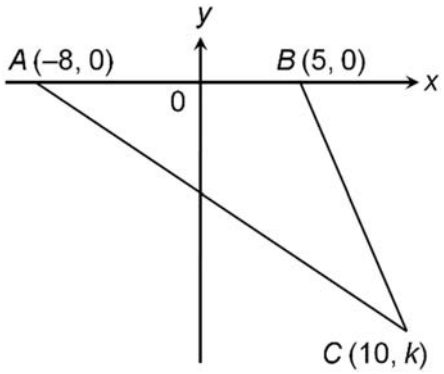
A. $\sqrt{15}$ units
B. $\sqrt{45}$ units
C. $\sqrt{80}$ units
D. $\sqrt{125}$ units

5. The three points $A(-3, -3)$, $B(1, b)$ and $C(3, 6)$ are collinear. Find the value of b.

A. 1
B. 2
C. 3
D. 4

Section C: Long Questions (21 marks)

1. In the figure, $A(-8, 0)$, $B(5, 0)$ and $C(10, k)$ are the vertices of an isosceles triangle, where $AB = BC$.



(a) Find the value of k.

(b) Hence, find the area of $\triangle ABC$.

(5 marks)

2. The coordinates of the points A and B are $(7, -8)$ and $(-5, -2)$ respectively. A is rotated clockwise about the origin O through $90°$ to A'. B' is the reflection image of B with respect to the x-axis.

(a) Write down the coordinates of A' and B'.

(b) Find the slope of $A'B'$.

(4 marks)

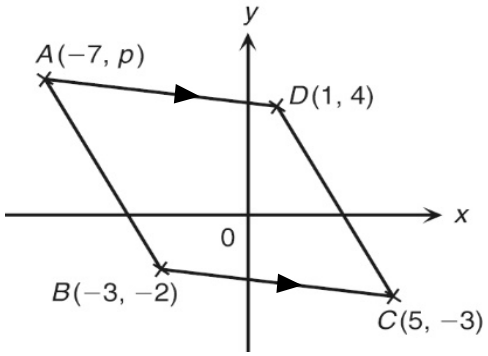
3. In the figure, $A(-7, p)$, $B(-3, -2)$, $C(5, -3)$ and $D(1, 4)$ are the vertices of a quadrilateral $ABCD$, where $AD \parallel BC$.

(a) Find the value of p.

(b) **(i)** Find the slopes of AC and BD.

(ii) Prove that $AC \perp BD$.

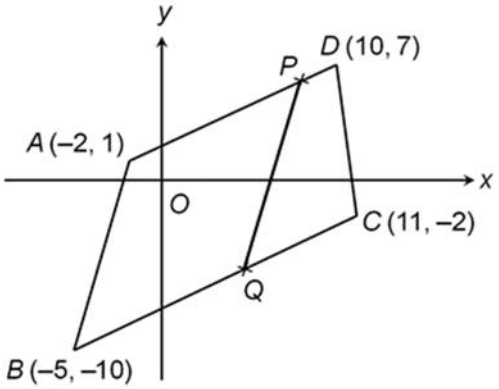
(7 marks)



4. In the figure, $A(-2, 1)$, $B(-5, -10)$, $C(11, -2)$ and $D(10, 7)$ are the vertices of a quadrilateral. P and Q are points on AD and BC respectively such that $AP : PD = 5 : 1$ and $BQ : QC = 5 : 3$.

(a) Find the coordinates of P and Q.

(b) Prove that $ABQP$ is a parallelogram.



(5 marks)