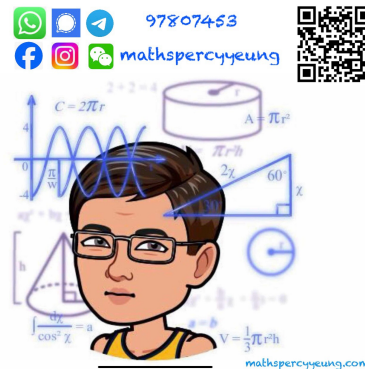


LTP F3 T8 Coordinates Geometry



2018 – 2019
S.3 Mathematics Uniform Test 8 (3SMA)

Question-Answer Book

Date: 7th March, 2019

Time: 40 mins

This paper must be answered in English

Instructions :

1. Write your name, class and class number in the spaces provided on this cover.
2. Answer ALL questions in this paper. Write your answers in the spaces provided in this Question-Answer Book.
3. Write your answers with black or blue ball-pens, and draw graphs or figures with HB pencils.
4. Unless otherwise specified, all working must be clearly shown.
5. Unless otherwise specified, numerical answers should be either exact or correct to 3 significant figures.
6. The diagrams in this paper are not necessarily drawn to scale.

Section A :

Multiple Choice Questions

1- 10	20	
Total	20	

Section B :

Conventional Questions

11	3	
12	3	
13	6	
14	4	
15	7	
Total	23	

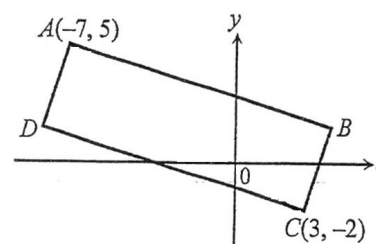
Bonus	5	
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Total	43	
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Section A: Multiple Choice Questions (20 marks)

1. In the figure, $ABCD$ is a rectangle. Find the length of the diagonal AC .

- A. $\sqrt{7}$ units
 B. $\sqrt{51}$ units
 C. 5 units
 D. $\sqrt{149}$ units

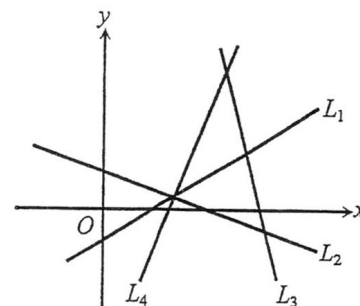


2. $A(-9, 11)$ and $B(5, 7)$ are two points on a rectangular coordinate plane. If P is a point on the y -axis such that $AP = PB$, then the coordinates of P are

- A. $(0, -16)$.
 B. $(2, 9)$.
 C. $(0, 16)$.
 D. $(-2, 9)$.

3. The figure below shows four straight lines L_1, L_2, L_3 and L_4 . The slopes L_1, L_2, L_3 and L_4 are m_1, m_2, m_3 and m_4 respectively. Which of the following is true?

- A. $m_4 > m_1 > m_2 > m_3$
 B. $m_3 > m_4 > m_1 > m_2$
 C. $m_2 > m_1 > m_4 > m_3$
 D. $m_1 > m_2 > m_3 > m_4$



4. Which of the following points is collinear with $A(5, 2)$ and $B(4, 1)$?

- A. $P(0, 1)$
 B. $Q(5, 0)$
 C. $R(-4, -1)$
 D. $S(1, -2)$

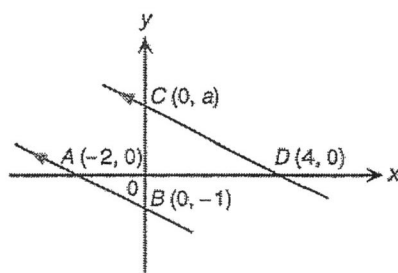
5. The slopes of L_1, L_2, L_3, L_4 and L_5 are $m_1 = \frac{4}{3}, m_2 = -\frac{2}{3}, m_3 = \frac{3}{2}, m_4 = \frac{4}{3}$ and $m_5 = -\frac{4}{3}$ respectively. Which of the following is/are true?

- I. $L_1 \parallel L_5$
 II. $L_2 \perp L_3$
 III. $L_4 \perp L_5$

- A. I only
 B. II only
 C. I and III only
 D. II and III only

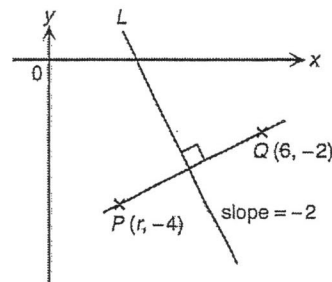
6. In the figure, $AB \parallel CD$. Find the value of a .

- A. 4
 B. 2
 C. $\frac{1}{4}$
 D. $\frac{1}{2}$



7. Given that a straight line passes through $P(r, -4)$ and $Q(6, -2)$ and is perpendicular to another straight line L of slope -2 , find the value of r .

- A. 2
 B. 3
 C. 5
 D. 7

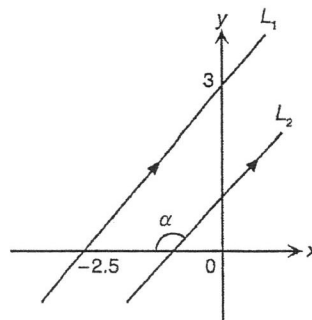


8. $A(-4, 6)$ and $B(8, 12)$ are two points on a rectangular coordinate plane. If C is a point lying on the x -axis such that $AB \perp AC$, then the coordinates of C are

- A. $(-1, 0)$
 B. $(0, 0)$
 C. $(1, 0)$
 D. $(2, 0)$

9. In the figure, L_1 and L_2 are two parallel lines on the rectangular coordinate plane. L_1 cuts the x -axis and y -axis at $(-2.5, 0)$ and $(0, 3)$ respectively. Let α be the obtuse angle between L_2 and the x -axis, find α correct to 3 significant figures.

- A. 128°
 B. 130°
 C. 132°
 D. 134°



13. Given that $A(-2, 1)$, $B(1, -2)$, $C(3, 0)$ are vertices of a triangle.

(a) (i) Determine whether $\triangle ABC$ is a right-angled triangle.

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

(b) D is a point on AC such that $BD \perp AC$. Find the length of BD , correct to 3 significant figures.

(6 marks)

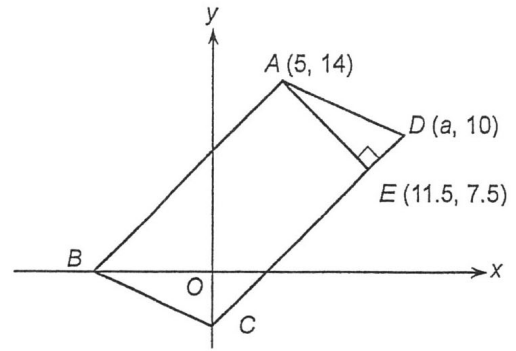
14. The coordinates of A and B are $(3, -5)$ and $(17, -33)$ respectively.
- (a) M is the mid-point of the line segment joining A and B . Find the coordinates of M .
- (b) P is a point lying on AB such that $AP : PB = 5 : 2$. Find the coordinates of P .

(4 marks)

15. In the figure, $ABCD$ is a parallelogram. B and C are points on the x -axis and the y -axis respectively.

E is a point on CD such that $AE \perp CD$.

- (a) Find the slope of AE
- (b) Find the coordinates of D .
- (c) Find the coordinates of C
- (d) Find the area of the parallelogram $ABCD$.



(7 marks)

Bonus Question: (5 marks)

In the figure, $A(-4, 0)$, $B(1, 6)$ and $C(8, 0)$ are the vertices of $\triangle ABC$ on the rectangular coordinate plane. BD is the height of $\triangle ABC$.

- (a) Find the coordinates of D .
- (b) If F is a point on BC such that $DF \perp BC$, find the length of DF . (Leave your answer in surd form.)
- (c) If E is a point on AB such that $DE \parallel CB$, find the coordinates of E .

