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TUTGATHER PRACTICE PAPER

HONG KONG DIPLOMA OF SECONDARY EDUCATION EXAMINATION 2027

Candidate Number

MATHEMATICS Compulsory Part
PAPER 1

Question-Answer Book

TUTGATHER
PRACTICE PAPER · NOT AN OFFICIAL HKEAA PAPER

1 hour 5 minutes

This paper must be answered in English

Topic practice: Equations of Straight Lines

INSTRUCTIONS

(1) This paper consists of THREE sections, A(1), A(2) and B.

(2) Attempt ALL questions in this paper. Write your answers in the spaces provided in this Question-Answer Book. Do not write in the margins.

(3) Unless otherwise specified, all working must be clearly shown.

(4) Unless otherwise specified, numerical answers should be either exact or correct to 3 significant figures.

(5) The diagrams in this paper are not necessarily drawn to scale.

(6) Calculators and mathematical drawing instruments may be used.

(7) The marks for each question are shown in brackets.

(8) No extra time will be given after the 'Time is up' announcement.

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SECTION A(1) (16 marks)

1. Find the slope and the y-intercept of the straight line $3x - 4y + 8 = 0$. **(3 marks)**

2. Find the equation of the straight line passing through the point $(2, -1)$ with slope -3. Express your answer in general form $Ax + By + C = 0$. **(3 marks)**

3. The straight line L_1 has equation $2x + 5y - 10 = 0$. **(4 marks)**
(a) Find the slope of L_1.
(b) Find the equation of the straight line L_2 which is perpendicular to L_1 and passes through the point $(4, -1)$. Give your answer in slope-intercept form.

Answers written in the margins will not be marked.
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4. The coordinates of A and B are $(-2, 5)$ and $(4, -3)$ respectively. **(6 marks)**

(a) Find the equation of the straight line AB.

(b) Find the coordinates of the point where AB cuts the x-axis.

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SECTION A(2) (24 marks)

5. The straight line L passes through $P(-1, 4)$ and $Q(3, -2)$. **(7 marks)**

(a) Find the slope of L.

(b) Find the equation of L in general form.

(c) Determine whether the point $R(5, -5)$ lies on L. Justify your answer.

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6. The straight line L_1 has equation $2x - y + 3 = 0$ and the straight line L_2 has equation $x + 2y - 4 = 0$. **(8 marks)**

(a) Find the coordinates of the intersection point of L_1 and L_2.

(b) Find the equation of the straight line L_3 that passes through the intersection point of L_1 and L_2 and is perpendicular to L_1. Give your answer in general form.

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7. The straight line L_1 passes through $A(1, 2)$ and $B(4, 8)$. The straight line L_2 passes through $C(0, 5)$ and is parallel to L_1. **(9 marks)**

(a) Find the equation of L_1.

(b) Find the equation of L_2.

(c) Find the distance between the y-intercepts of L_1 and L_2.

(d) A third line L_3 passes through A and is perpendicular to L_1. Find the coordinates of the intersection point of L_2 and L_3.

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SECTION B (10 marks)

8. The straight line L_1 has equation $3x + 4y - 12 = 0$. The straight line L_2 is perpendicular to L_1 and passes through the point $P(6, 1)$. **(10 marks)**

(a) Find the equation of L_2 in general form.

(b) Find the coordinates of the intersection point Q of L_1 and L_2.

(c) Find the exact distance from P to Q.

(d) The straight line L_3 is parallel to L_1 and passes through P. Find the distance between L_1 and L_3.

END OF PAPER

Answers written in the margins will not be marked.

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