JU CHING CHU SECONDARY SCHOOL (T .M.)

F.5 Mathematics Test

Ch.3 Linear & Quadratic Inequalities in One Variable

Ch.7 Linear Inequalities in Two Variables & Linear Programming

1. Solve the inequality

   $-1 < \frac{1}{4}(3-2x)+1 \le 2$.

2. Solve the simultaneous inequalities

   $\begin{cases} x-2(x-5) \ge 8 \\ \frac{x}{2}-(x-3) \ge \frac{1}{4} \end{cases}$

3. (a) Solve the inequality $2x^2 - 7x < 15$,

   (b) Hence solve $2(y+3)^2 - 7(y+3) < 15$.

4. Find the range of values of k if the equation $(k-2)x^2 = (k+1)(x+1)$ has two real roots.

5. The perimeter of a rectangle is 38 cm, the area must be less than 78 cm^2. What is the range of values of the shortest side of the rectangle?

6. In the figure below,

   $\ell_1 : 2x - 3 = 0$

   $\ell_2 : x - 3y = 0$

   $\ell_3 : x + 2y - 10 = 0$

   (a) Find the coordinates of the points A, B & C.

   (b) The shaded region, including the boundary, is determined by three inequalities. Write down those inequalities.

   (c) It is given that $P = 3x + 4y$ & (x, y) is any point in the shaded region, including the boundary. Find the maximum & minimum values of P.

END

裘錦秋中學 (屯門)

中五級 數學科 測驗

第三課 一元一次及一元二次不等式
第七課 二元一次不等式及線性規劃

1. **解不等式**

   $-1 < \frac{1}{4}(3-2x)+1 \le 2$。

2. **解不等式組**

   $\begin{cases} x-2(x-5) \ge 8 \\ \frac{x}{2}-(x-3) \ge \frac{1}{4} \end{cases}$

3. (a) **解不等式** $2x^2 - 7x < 15$,

   (b) **由此解** $2(y+3)^2 - 7(y+3) < 15$。

4. **若方程** $(k-2)x^2 = (k+1)(x+1)$ **有兩個實根, 求** k **的值的範圍**。

5. **一長方形的周界為** 38 cm, **若它的面積小於** 78 cm^2; **求長方形最短的邊的值的範圍**。

6. **下圖中,**

   $\ell_1 : 2x - 3 = 0$

   $\ell_2 : x - 3y = 0$

   $\ell_3 : x + 2y - 10 = 0$

   (a) **求** A, B **及** C **三點的坐標**。

   (b) **試寫出確定陰影區域** ABC (**包括邊間**)**的三個不等式**。

   (c) **試求** $P = 3x + 4y$ **的極大值及極小值, 其中** x **及** y **分別代表區域** ABC (**包括邊間**)**內一個任意點的** x **坐標及** y **坐標**。

完