

Linear Inequalities in Two Variables

Linear Inequality in Two Variables: an inequality which can be written in any one of the following forms

$Ax + By < C$ $Ax + By \leq C$

$Ax + By > C$ $Ax + By \geq C$

where A , B , and C are any real numbers.

The solution of an inequality in two variables are the ordered pairs of numbers that make the inequality true.

How to Graph Linear Inequalities in Two Variables

1. Graph the corresponding equation. Use broken line if inequality is not included and a solid line if inequality is included.

2. Choose a point on the plane not on the line and substitute its coordinate in the inequality.

3. If the inequality is satisfied, shade the region containing that point. If not, shade the other region.

Practice Exercises

A. Identify whether each ordered pair is a solution to the given inequality. Write *YES* if it is or *NO* if it is not.

1. $x + y > -1$

a. $(-1, 2)$

b. $(0, 0)$

c. $(-3, 2)$

2. $2x - y \geq 3$

a. $(2, 1)$

b. $(2, 0)$

c. $(\frac{1}{2}, 2)$

3. $3x + 2y \leq 5$

a. $(4, 2)$

b. $(-\frac{1}{2}, -3)$

c. $(-5, 2)$

- B. Translate the following situations into mathematical phrases.

1. The sum of two numbers is less than 7.

2. The difference of two numbers is greater than 2.

3. Thrice a number is less than or equal to another number.

4. Nicole bought 2 earrings (e) and 3 bracelets (b) and paid not more than ₱1,000.00.

5. Twice the number of mango (m) exceeds thrice the number of guava (g).
- C. Graph each inequality.

1. $x - 2y > -2$

2. $3x + 3y \geq 6$

3. $2x - y < 2$

4. $x - y \leq -4$

Problem Set

- A. Identify whether each ordered pair is a solution to the given inequality. Write *YES* if it is or *NO* if it is not.

1. $-x - y > 1$

a. $(-1, 2)$

b. $(0, 0)$

c. $(-3, 2)$

2. $3x - 3y \geq 2$

a. $(2, 1)$

b. $(2, 0)$

c. $(\frac{2}{3}, 1)$

3. $3x + y \leq 2$

a. $(4, 2)$

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c. $(-5, 2)$
- B. Translate the following situations into mathematical phrases.

1. The number of girls (g) in the band is one more than twice the number of boys (b).

2. The school bus has a maximum seating capacity (c) of 80 persons.

3. Seven times the number of male teachers (m) is the number of female teachers (f).

4. According to research, an average adult generates about 4 kg of waste daily (w).

5. To get a passing mark in school, a student must have a grade (g) of at least 75.
- C. Graph each inequality.

1. $2x - y > 10$

2. $2x - 2y \geq -8$

3. $-3x + y < -12$

4. $x + y \leq -5$

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