

# Algebra2partb

[Science](#), [Mathematics](#)



Project Part B: Where's the Intersection Can two lines be drawn with the given intersection? Support your answer with a diagram, an example, a real life situation, or an explanation. Be sure to answer the question for all four intersections given.

a. a point

Yes, two lines can be drawn with a point as the intersection. Below figure shows a point as the intersection for the two lines.

b. a line

Yes, two lines can be drawn with a line as the intersection. However, both lines will be same that is dependent system (the same line drawn twice). Below figure shows a line as the intersection for the two lines.

c. a region

No, two lines cannot be drawn with a region as the intersection. As shown in below figure, two lines can be drawn with a point or a line as the intersection or with no intersection (red and blue line).

d. no intersection

Yes, two lines can be drawn with no intersection. In this case, both lines will be parallel. Below example shows two lines with no intersection.

2. Can the graphs of two linear inequalities be drawn with the given intersection? Again, support your answer. Be sure to answer the question for all four intersections given.

a. a point

No, the graphs of two linear inequalities cannot be drawn with a point as the intersection. This is because whenever we draw graphs of two linear inequalities, there will be a line as the intersection, a region as the

intersection or there will be no intersection. However, there will not be a point as the intersection.

b. a line

Yes, the graphs of two linear inequalities can be drawn with a line as the intersection. Below figure shows a line as the intersection for the graphs of two linear inequalities.

c. a region

Yes, the graphs of two linear inequalities can be drawn with a region as the intersection. Below figure shows a region as the intersection for the graphs of two linear inequalities.

d. no intersection

Yes, the graphs of two linear inequalities can be drawn with no intersection. Below figure shows no intersection for the graphs of two linear inequalities.

3. Compare the possible intersections of two lines with possible intersections of the graphs of two linear inequalities. What do you notice?

The possible intersections of two lines are a point and a line. The possible intersections of the graphs of two linear inequalities are a line and a region. Thus, we notice that a line can be possible intersection of both, that is the intersection of two lines and two linear inequalities.

4. Find the possible intersections of more than two lines. Support each possibility with a diagram or an explanation.

The possible intersections of more than two lines can be a point, a line (the same line drawn more than twice), a region (an area enclosed) or no intersection at all (more than two parallel lines).

5. Find the possible intersections for the graphs of more than two linear

inequalities. Support each possibility with a diagram or an explanation.

The possible intersections of the graphs of more than two linear inequalities are a point, a line, a region and no intersection at all (for all the linear inequalities).

Below figure shows the graphs of three linear inequalities. Here the intersection is a point  $(3, 0)$ .

Below figure shows the graphs of three linear inequalities. Here the intersection is a line  $(x + y = 2)$ . One thing we can notice from here is that the linear equation for all the three inequalities is the same that is  $x + y = -2$ .

Below figure shows the graphs of three linear inequalities. Here the intersection is a region.

Below figure shows the graphs of three linear inequalities with no intersection (for all the three linear inequalities).