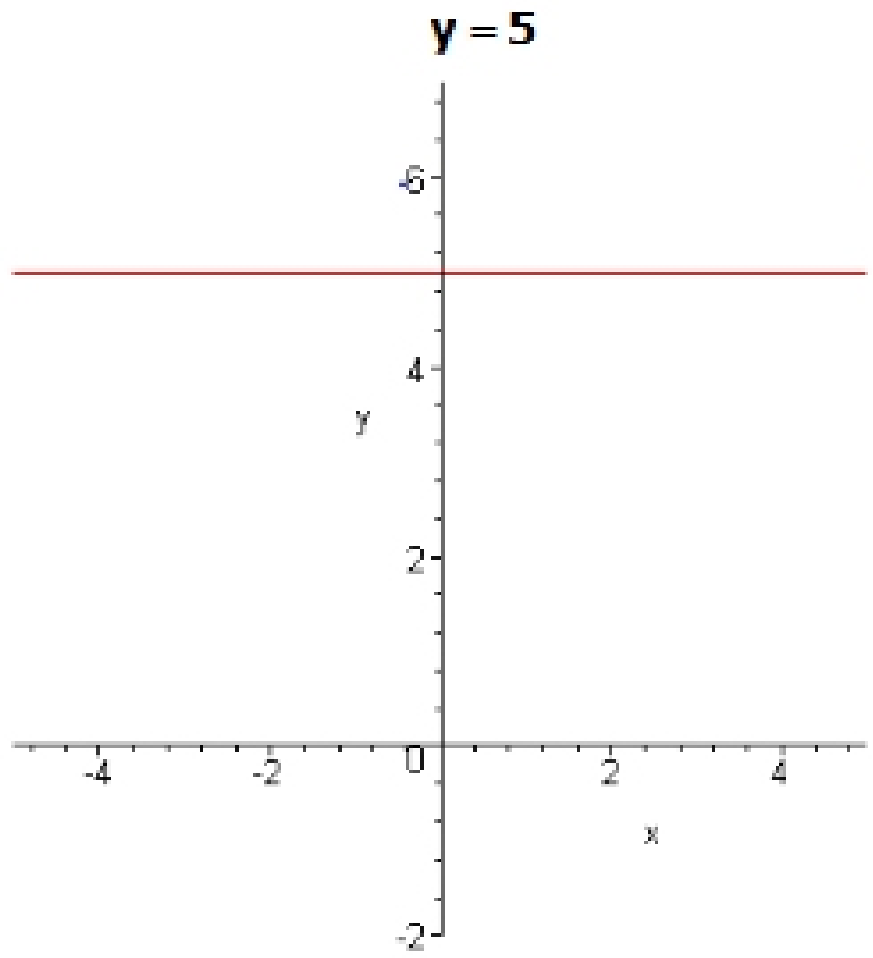
Points: Look over the examples located in the book under section 1.1 titled Points.

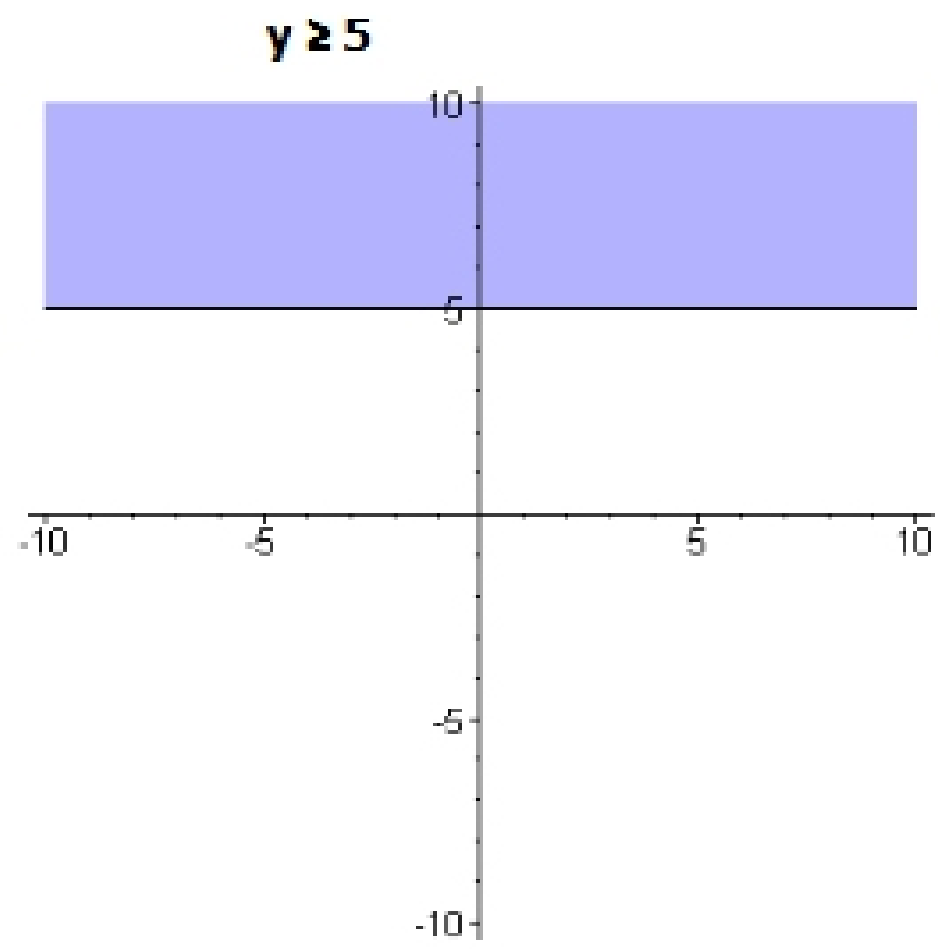
Regions:

Example 1:



no slope
horizonta line
yint (0,5)
no xint

Example 2:



≥

line is included

because it is a Solid line

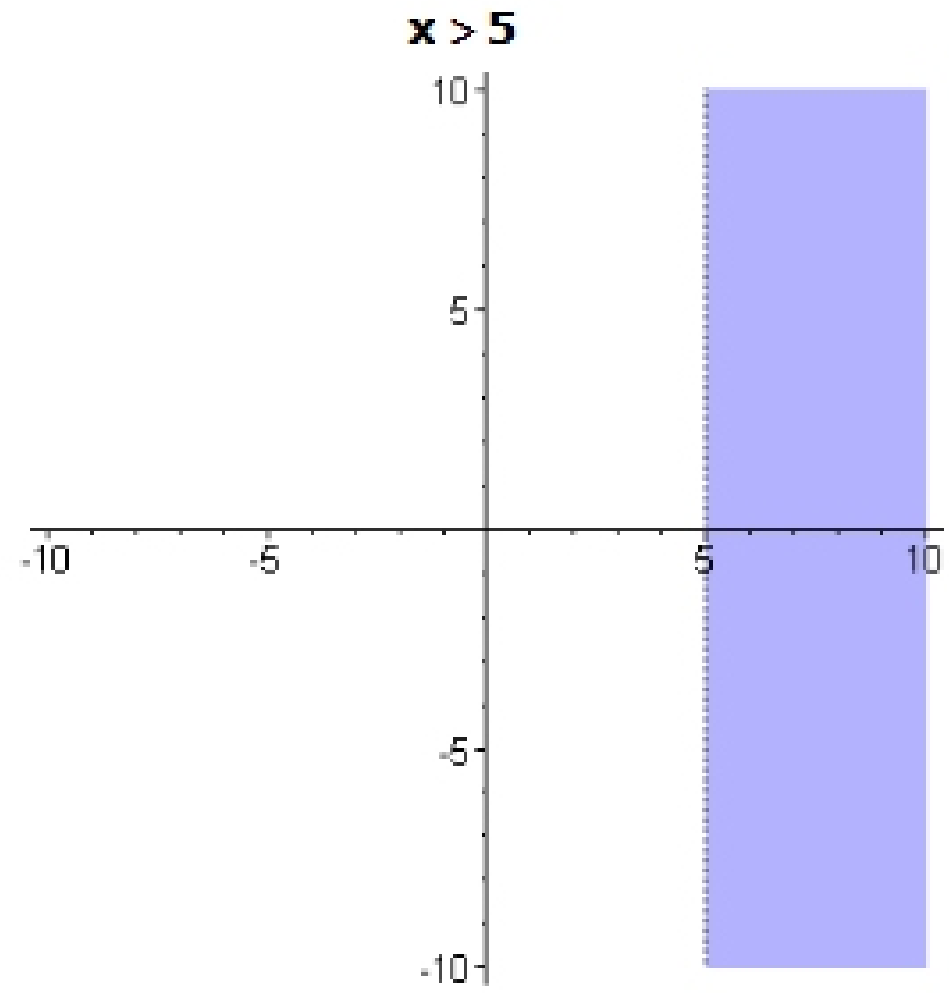
Example 3:

$>$

does not include the line

undefined slope

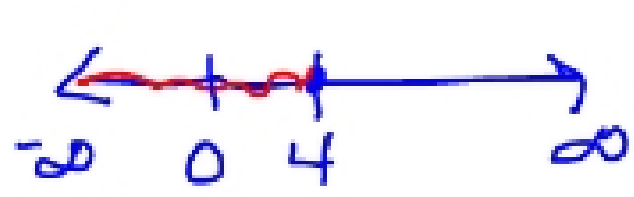
xint (5,0)



Example 4:
Solve the inequality: $3y \leq 12$

$\frac{3y}{3} \leq \frac{12}{3}$

$y \leq 4$



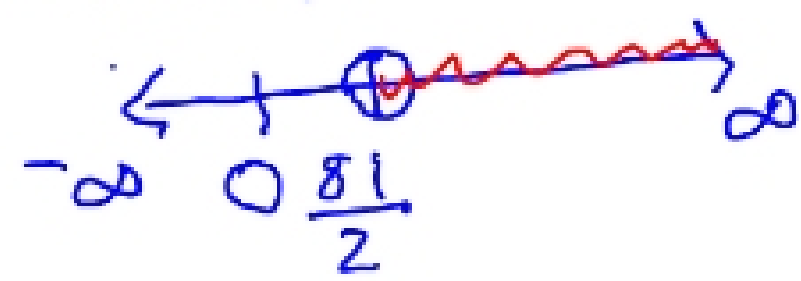
Example 5:

Solve the inequality: $-\frac{2}{3}x < -27$

mult/divide by a negative number → flip the sign

$\left(-\frac{3}{2}\right)\left(-\frac{2}{3}\right)x > \left(-\frac{3}{2}\right)\left(-\frac{27}{1}\right)$

$x > \frac{81}{2}$

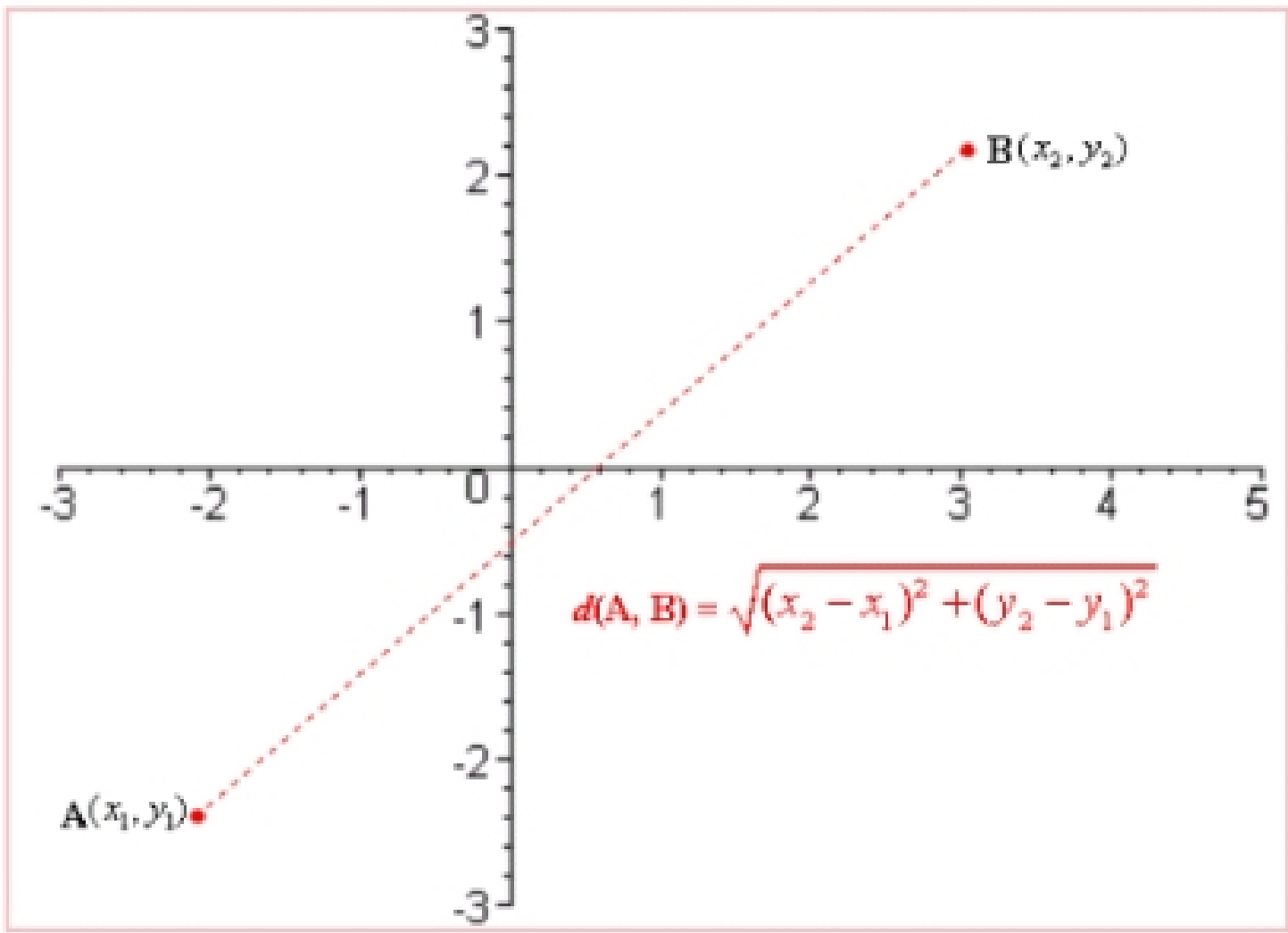


Distances:

The Distance Formula

The distance between two points $\mathbf{A}(x_1, y_1)$ and $\mathbf{B}(x_2, y_2)$ in the plane is given by

$$d(\mathrm{A},\mathrm{B}) = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$



Example 6:

Find the distance between the points $(-4,5)$ and $(3,2)$. $x_1\ y_1$ $x_2\ y_2$

$$d = \sqrt{(x_2-x_1)^2 + (y_2-y_1)^2}$$

$$d = \sqrt{(3-(-4))^2 + (2-5)^2}$$

$$d = \sqrt{(3+4)^2 + (-3)^2}$$

$$d = \sqrt{7^2 + 9} = \sqrt{49+9} = \sqrt{58}$$