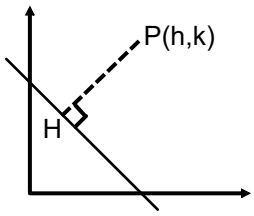
Distance from a point to a line

Formula:

$$d(P,l) = \frac{|ah + bk + c|}{\sqrt{a^2 + b^2}}$$



The distance between a point P to a line is the length of the segment PH, where H is the perpendicular distance from the point to the line.

The line must be in general form.

Example:

Find the distance between the line y=2x+3 and the point P(8,4).

1- change y=2x+3 into GF.

2x-y+3=0 thus a=2 b=-1 c=3

2- Point P(8,4) thus h=8 and k=4

3 - Now plug all the variables into the formula and solve.

$a=2 \quad h=8$
$b=-1 \quad k=4$
$c=3$

$$d(P,l) = \frac{|ah + bk + c|}{\sqrt{a^2 + b^2}}$$

$$= \frac{|(2)(8) + (-1)(4) + 3|}{\sqrt{2^2 + (-1)^2}}$$

$$= \frac{|15|}{\sqrt{5}} = \frac{15}{\sqrt{5}} = 6.71 \text{ u}$$