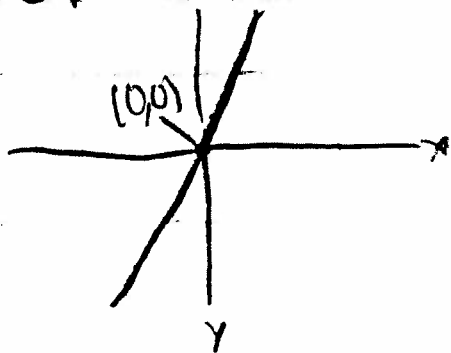


1. What is direct variation? Explain in detail including equations, graphs, and appropriate vocabulary. Include a specific example. Tables <sup>^</sup>

With a direct variation  $y$  varies directly with  $x$  and a constant of proportionality  $k$  in the form  $y = kx$  or  $\frac{y}{x} = k$ . The symbolic form of  $\frac{y}{x} = k$  shows that the ratio of  $y$  to  $x$  is constant, for any corresponding values of  $y$  and  $x$ .

A graph of a direct variation would be a linear line with a  $y$ -intercept of 0. In a table of values the ratio of  $y$  to  $x$  is constant throughout the entire table. When explaining a direct relationship you can also say that  $y$  is directly proportional to  $x$  with a constant of proportionality  $k$  instead of  $y$  varies directly with  $x$ , with a constant of proportionality  $k$ .  
ex:  $N = 100h$  or  $\frac{N}{h} = 100$



| x | y   |
|---|-----|
| 0 | 0   |
| 1 | 100 |
| 2 | 200 |
| 3 | 300 |

ratio of  
 $y : x = 100$   
for each  
value

The number of sheets varies directly with height of the stack with a constant of proportionality, etc.