

Name _____ Period _____

Proportional Relationships: In tables, graphs, and equations

2 quantities are proportional when:

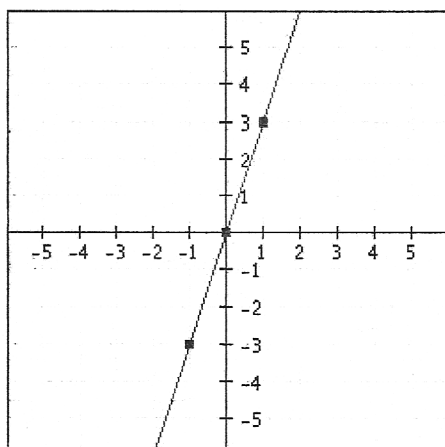
1) Equation: $y = mx$ example: (where $m = 3$ and $m \neq 0$)

2) Table: $x =$ independent variable $y =$ dependent variable

X	Y	$M \cdot X$
0	0	$3 \cdot 0 = 0$
1	3	$3 \cdot 1 = 3$
2	6	$3 \cdot 2 = 6$
-1	-3	$3 \cdot -1 = -3$
-2	-6	$3 \cdot -2 = -6$

3) Graph: Graph the table values.

When x & y vary directly,
they are proportional,
and the slope of the line passes through the point $(0,0)$.



2 quantities are NOT proportional when:

1) **Equation:** $y = mx + b$

example: where $m \neq 0$ and $m = 3, b = 2$

$$Y = 3x + 2$$

2) **Table:** $x =$ independent variable $y =$ dependent variable

X	Y	$M \cdot X + b$
0	0	$3 \cdot 0 + 2 = 2$
1	5	$3 \cdot 1 + 2 = 5$
2	8	$3 \cdot 2 + 2 = 8$
-1	-1	$3 \cdot -1 + 2 = -1$
-2	-4	$3 \cdot -2 + 2 = -4$

3) **Graph:** When b is added to mx ,
 X and y do not vary directly,
and the slope of the line does not pass through $(0,0)$.