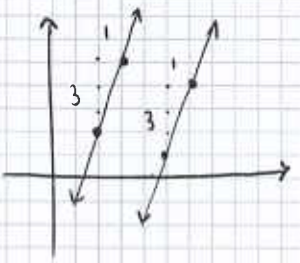
Parallel and Perpendicular Lines

- Parallel Lines have the same slope.

ex 

Both lines have a slope of $\frac{3}{1}$

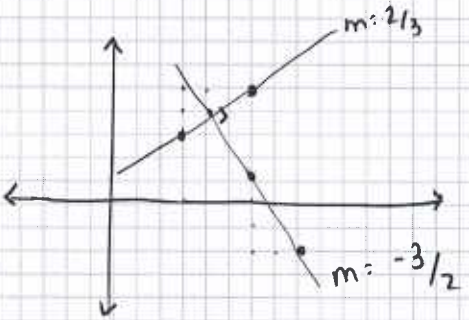
* consider equivalent fractions too: $\frac{1}{2}$ and $\frac{5 \div 5}{10 \div 5} = \frac{1}{2}$

same slope → parallel

Perpendicular Lines have "opposite" slopes.

↳ Their slopes are the negative reciprocal of each other.

Ex. $\frac{2}{3}$ and $-\frac{3}{2}$ OR $-\frac{4}{1}$ and $\frac{1}{4}$



Ex. Are the following pairs of lines parallel, perpendicular or neither? WHY?

a) $\frac{5}{6}$ and $\frac{6}{5}$ neither. not the same, not neg. reciprocals

b) $\frac{2}{1}$ and $\frac{4 \div 2}{2} = \frac{2}{1}$ parallel. same slope

5 $\overline{10^{+2}}$ 5

c) $-\frac{1}{3}$ and $-\frac{2}{3}$ neither. not same, not neg. reciprocals.

d) $\frac{5}{2}$ and $-\frac{2}{5}$ perpendicular. neg. reciprocal