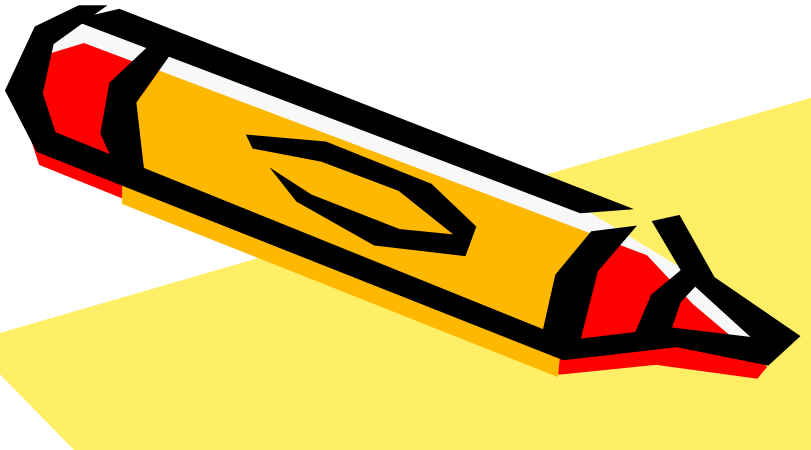


Geometry

Slope of Parallel & Perpendicular Lines

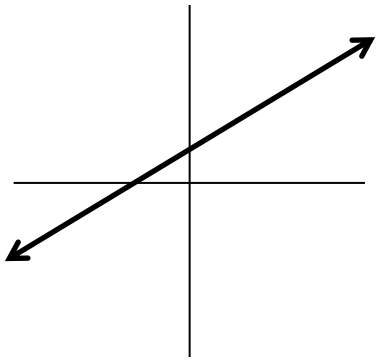
Recalling Slope

Recall Slope…

$$m = \frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1}$$

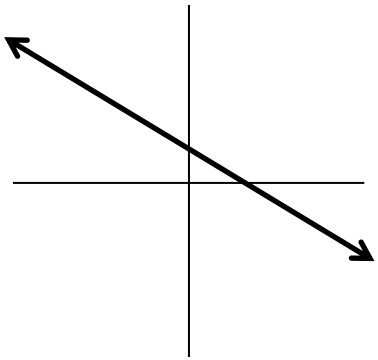
Inclining or Uphill

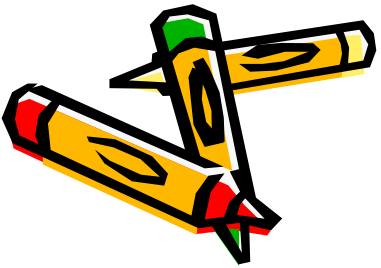
Slope is positive



Declining or Downhill

Slope is negative





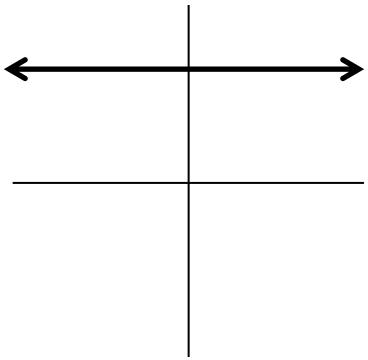
Recalling Slope

Recall Slope…

$$m = \frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1}$$

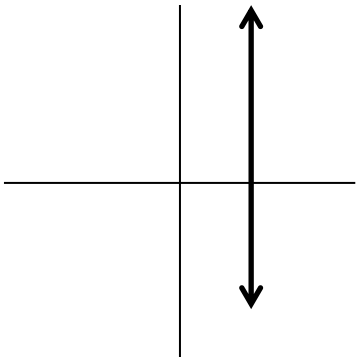
Horizontal

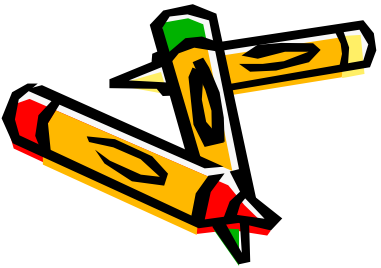
Slope = 0



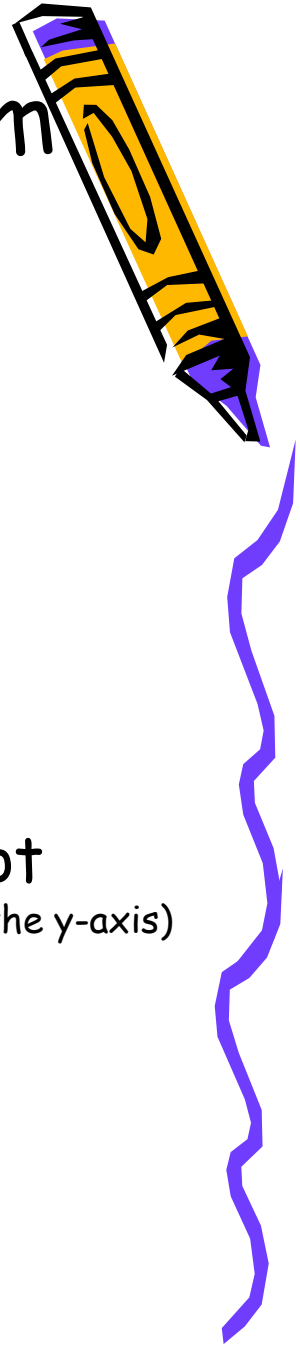
Vertical

Slope is undefined





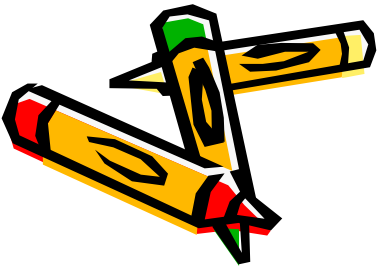
Recalling Slope-Intercept Form of a linear equation



Slope Intercept Form: $y = mx + b$

slope

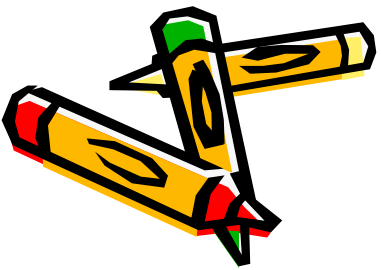
Y-intercept
(where the line crosses the y-axis)



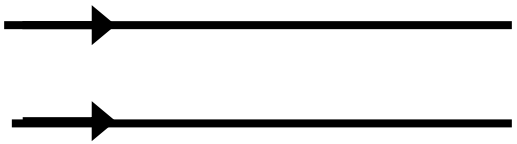
Find slope…

Find the slope of the line given the information provided:

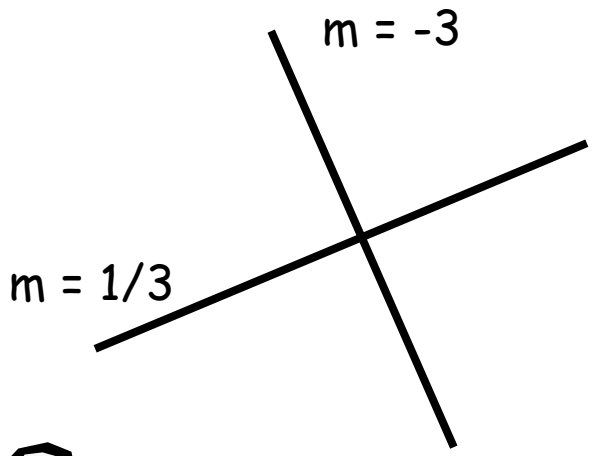
1. A(6, 8) B(-4, 4)
2. C(-2, 6) D(4, -6)
3. E(4, -7) F(4, 5)
4. $y = -3x + 4$
5. $-4x - 2y = 8$



Parallel & Perpendicular Lines



Parallel lines have equal slopes.



Perpendicular lines have slopes that multiply to -1.

Another way to put it…perpendicular lines have opposite reciprocal slopes (flip the fraction, change the sign).

Parallel & Perpendicular Lines

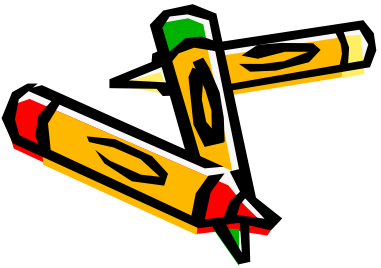
1. A(6, 8) B(-4, 4)

   slope of $\overline{AB}$ = 2/5

   any line // : m= 2/5
   any line $\perp$: m= -5/2

2. y = -3x + 4
   m = -3

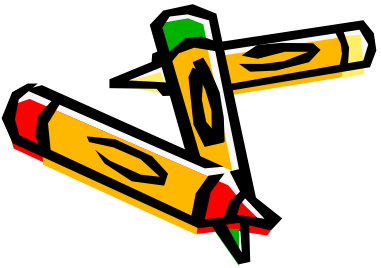
   any line // : m= -3
   any line $\perp$: m= 1/3



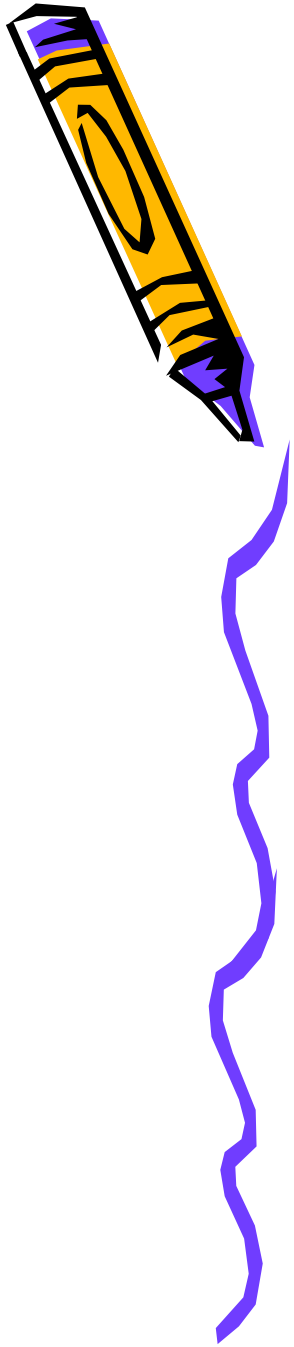
Parallel & Perpendicular Lines

Find the slope of a line that is parallel to the given line, and a line perpendicular to the given line:

1. C(-2, 6) D(4, -6)
2. E(4, -7) F(4, 5)
3. -4x - 2y = 8



Parallel & Perpendicular Lines

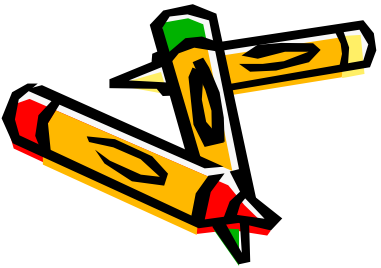


In each question, determine if $\overline{LM}$ and $\overline{HG}$ are parallel, perpendicular, or intersecting.

1. L(-2, 5) M(3, 1)
   H(4, 7) G(0, 2)

2. L(-4, -3) M(2, 1)
   H(1, 7) G(-2, 5)

3. $\overline{LM}$: $5x - 2y = 6$
   $\overline{HG}$: $2y = -5x + 12$



Parallel & Perpendicular Lines

Write the equation of the line in slope-intercept (y=mx+b) form, that passes through each pair of points.

1) Find slope
2) Plug in slope, x and y, to find b
3) Rewrite equation filling in m and b.

1. L(-2, 6) G(2, -8)

2. H(4, -3) M(-5, 5)