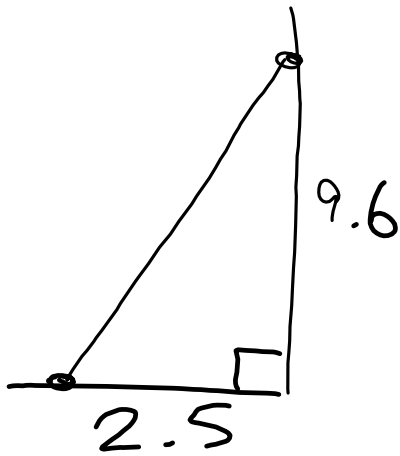


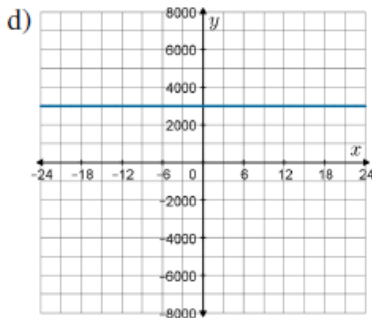
6. In order to be considered safe, a ladder leaned against a wall should not have a slope greater than 4. If the top of a ladder rests 9.6 feet up a wall and its base is 2.5 feet from the wall, can the ladder be safely used? Explain.



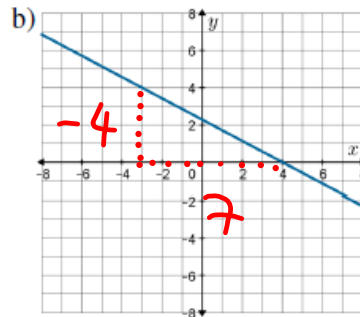
$$\begin{aligned} \text{Slope} &= \frac{\text{rise}}{\text{run}} \\ &= \frac{9.6}{2.5} \\ &= 3.84 \end{aligned}$$

$\Rightarrow$  It is safe to use

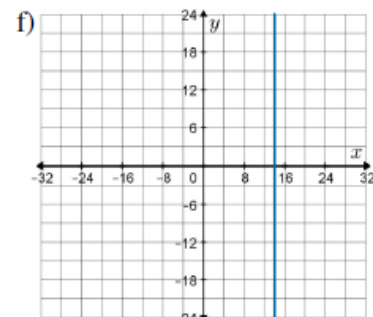
8. Determine the slope of each of the following lines.



Horizontal  
 $\Rightarrow$  slope = 0



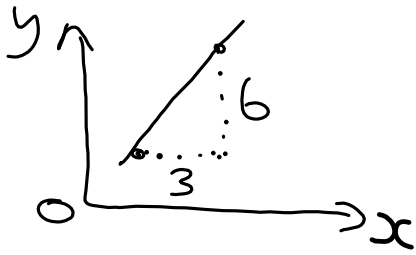
$$\text{slope} = \frac{-4}{7}$$



Vertical  
 $\Rightarrow$  slope is undefined  
[can't divide by a run of zero]

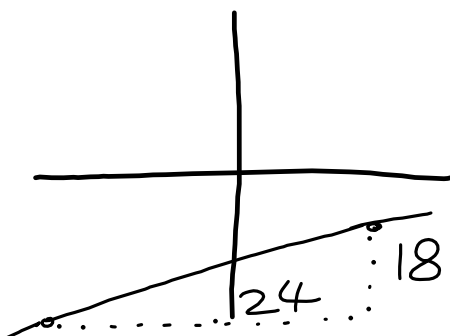
9. Determine the slope of the line that passes through each of the following pairs of points.

a) (2,4) and (5,10)



$$\begin{aligned} \text{Slope} &= \frac{\text{rise}}{\text{run}} \\ &= \frac{6}{3} \\ &= 2 \end{aligned}$$

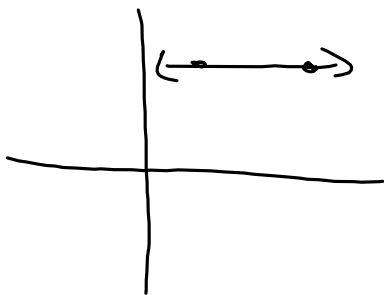
e) (10,-3) and (-14,-21)



$$\begin{aligned} \text{slope} &= \frac{\text{rise}}{\text{run}} \\ &= \frac{18}{24} \\ &= \frac{3}{4} \end{aligned}$$

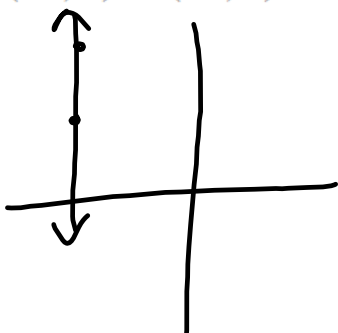
9. Determine the slope of the line that passes through each of the following pairs of points.

f) (15,17) and (9,17)



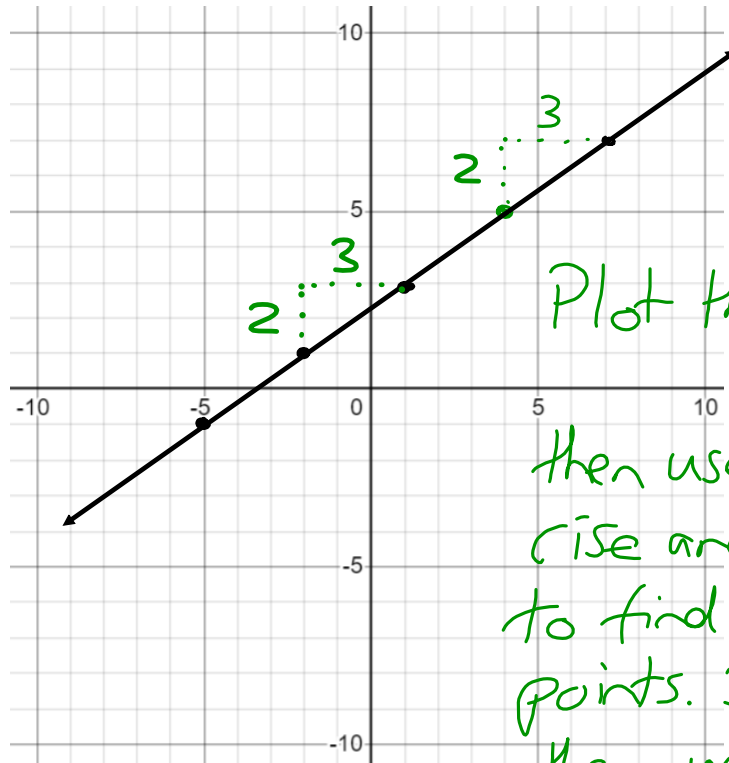
$$\begin{aligned} \text{Slope} &= \frac{\text{rise}}{\text{run}} \\ &= \frac{0}{6} \\ &= 0 \end{aligned}$$

h) (-40,54) and (-40,38)



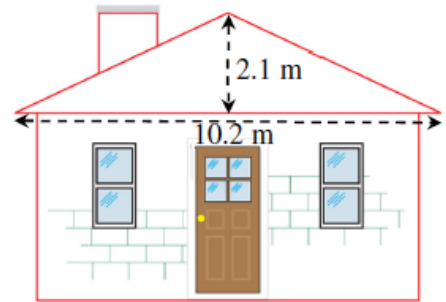
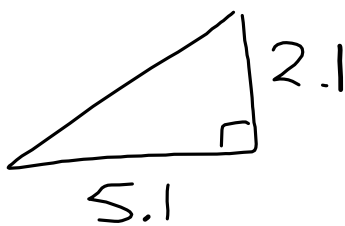
$$\begin{aligned} \text{Slope} &= \frac{\text{rise}}{\text{run}} \\ &= \frac{16}{0} \\ &= \text{undefined} \end{aligned}$$

10. Sketch a line that passes through the point (4,5) and has a slope of  $\frac{2}{3}$ .



Plot the point  
then use the  
rise and run  
to find other  
points. Join  
them up!

14. The slope of a roof is referred to as its *pitch*. Pitch is expressed as a fraction with a denominator of 12, since there are 12 inches in one foot. For example, a pitch of  $\frac{7}{12}$  indicates the roof rises 7 inches for every foot (12 inches) of run. Approximately what pitch is the roof shown in the illustration below?



Pitch is  $\frac{2.1}{5.1}$

$$\Rightarrow \frac{2.1}{5.1} = \frac{x}{12}$$

Need to express as a fraction (twelfths)

$$\frac{2.1}{5.1} \times 12 = \frac{x}{12} \times 12$$

$$4.94 = x$$

$\Rightarrow$  The pitch is about  $\frac{5}{12}$

16. For each of the following, a line with the given slope passes through the given point. Determine another point on the line in each case.

a) slope  $\frac{5}{6}$ , point (4,1)

Start with point (4,1)  
add the rise to y (5)  
add the run to x (6)  
 $\Rightarrow (4+6, 1+5)$   
 $= (10, 6)$