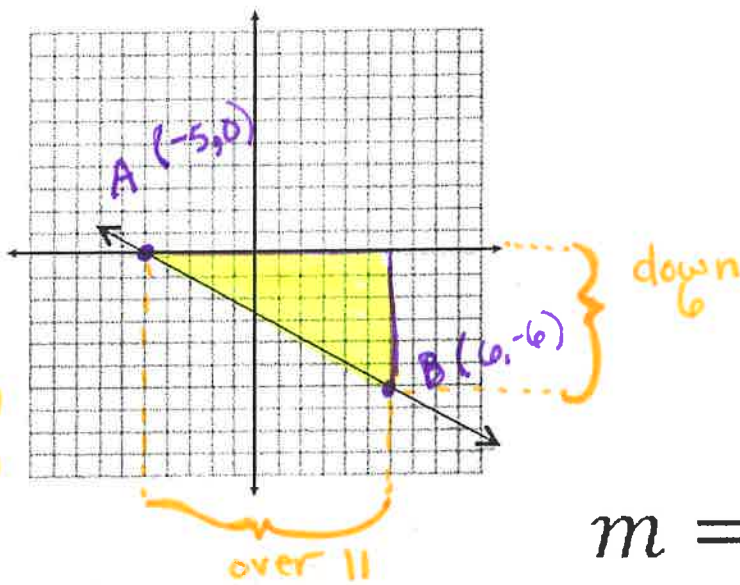


Slope

slope: a ratio of a line's rise : run
the "steepness" of a line.

$\frac{\text{rise}}{\text{run}}$

How do we get from point A to point B?



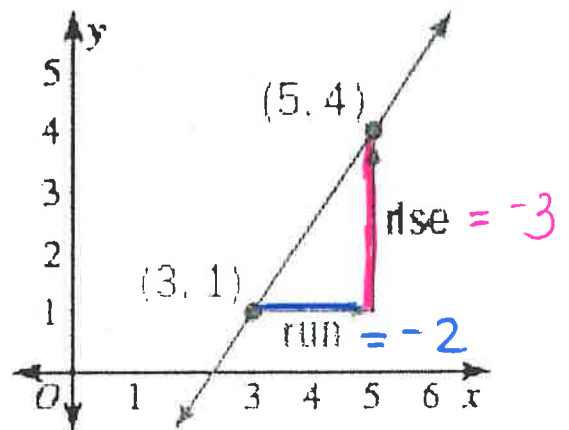
$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

A couple things about slope:

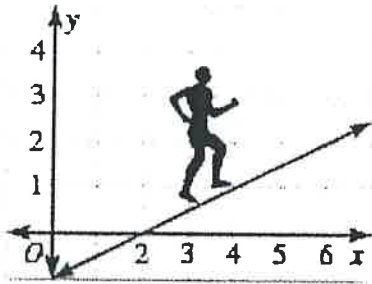
1. **M = Slope**
2. Improper fractions are ok for slope
3. Reduce fractions (but keep as improper)

$$m = \frac{\text{RISE}}{\text{RUN}}$$

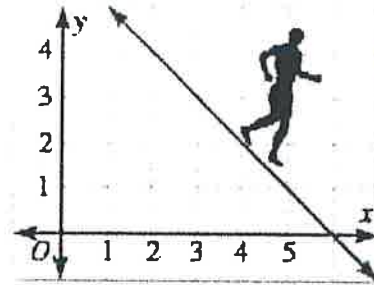
m = how far up or down
how far left or right



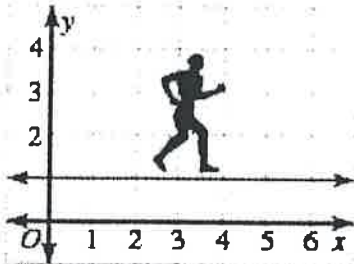
$$\text{Slope} = \frac{3}{2} = \frac{3}{2}$$



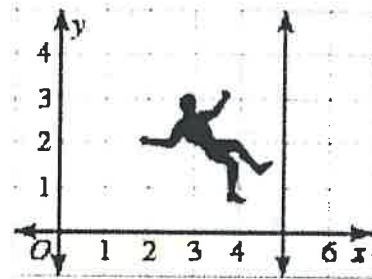
Positive Slope
line rises
goes up



Negative Slope
line falls
goes down

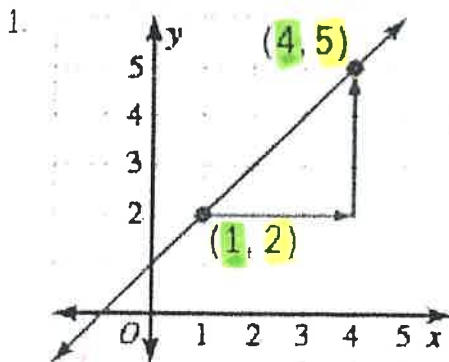


Zero Slope
line is
horizontal



Undefined slope
line is
vertical

Finding Slope



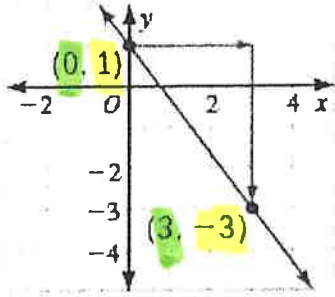
$$M = \frac{5-2}{4-1} = \frac{3}{3} = 1$$

2. $(1, 2), (4, 7)$ $M = \frac{7-2}{4-1} = \frac{5}{3}$ (uphill)

3. $(-2, 5), (6, 1)$ $M = \frac{1-5}{6-(-2)} = \frac{-4}{8} = -\frac{1}{2}$ (downhill)

Find the slope.

1.



$$M = \frac{1 - (-3)}{0 - 3} = \frac{4}{-3} \text{ (downhill)}$$

2. $(0, 0), (3, -9)$

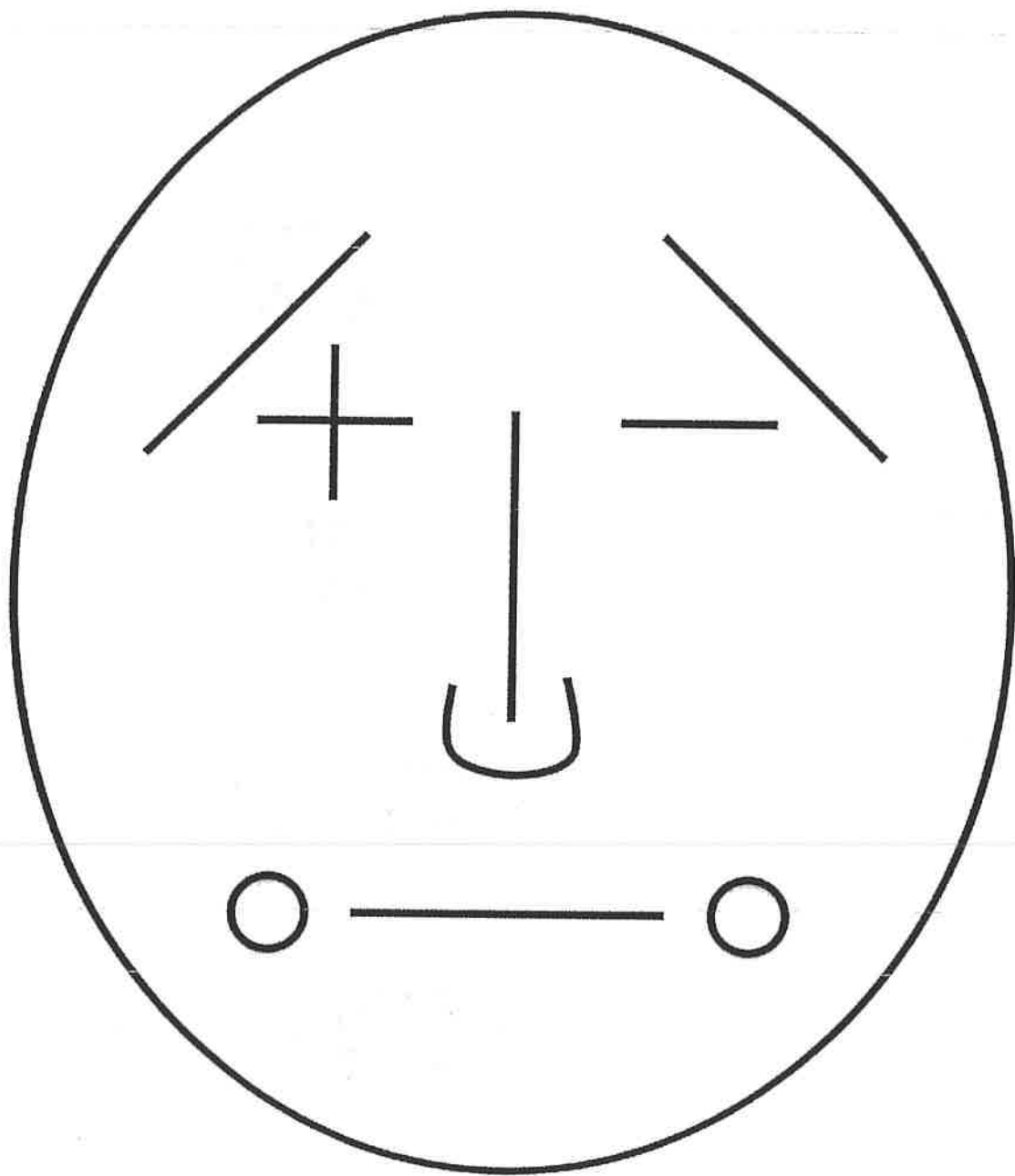
$$M = \frac{0 - (-9)}{0 - 3} = \frac{9}{-3} = -3 \text{ (downhill)}$$

3. $(-7, 4), (5, 4)$

$$M = \frac{4 - 4}{-7 - 5} = \frac{0}{-12} = 0 \text{ (horizontal line)}$$

4. $(6, 3), (6, -1)$

$$M = \frac{3 - (-1)}{6 - 6} = \frac{4}{0} = \text{(undefined)}$$



MR. SLOPE GUY