Lesson 16  
Finding slope graphically

To find the slope of a line graphically, you must first identify any two points that the line passes through. Look for points with integer coordinates for both $x$ and $y$ (points that lie where a vertical gridline and a horizontal gridline intersect). Once you’ve identified two points, you can then use the slope formula $m = \frac{\Delta y}{\Delta x}$ to find the slope.

**Example 1:** Given the following graphs, find the slope of each line and enter exact answers only (no approximations). If the slope of line is undefined, write UNDEFINED.

Identify any two points that the line is passing through, then use those two points to find the slope of the line.

(a) 
\((0, -3), (1,0)\)

\[
m = \frac{\Delta y}{\Delta x}
\]

Going from $-3$ to $0$, the $y$ value increases by $3$ ($\Delta y = 3$).

Going from $0$ to $1$, the $x$ value increases by $1$ ($\Delta x = 1$).

\[
m = \frac{3}{1} = 3
\]

(b) 
\((-3, 3), (3, -2)\)

\[
m = \frac{\Delta y}{\Delta x}
\]

Going from $3$ to $-2$, the $y$ value decreases by $5$ ($\Delta y = -5$)

Going from $-3$ to $3$, the $x$ value increases by $6$ ($\Delta x = 6$)

\[
m = \frac{-5}{6}
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c.

d.

e.

f.
Answers to Examples:
3a. \( m = 3 \); 3b. \( m = -\frac{5}{6} \); 3c. \( m = 0 \); 3d. UNDEFINED;
3e. \( m = \frac{1}{5} \); 3f. \( m = -\frac{7}{3} \);