WRITING PARALLEL LINE EQUATIONS

Parallel Lines has the same slope. The easiest formula to use is Point-slope $y-y_1=m(x-x_1)$ ***because it gives the slope m and a point on the line.***

Directions: **For #1-8, write the equation of a line that is *parallel* (//) to the given line and passes through the given point.**

① $y = 4x + 1$ and the parallel line equation passes through (5, 16).

x_1 y_1

$m = 4$

$m_{//} = 4$

$y - y_1 = m(x - x_1)$

$y-16=4(x-5)$

$y-16=4x-20$ $\quad y=4x-4$

② $y = -\frac{1}{3}x - 2$ and the parallel line equation passes through (12, -8).

x_1 y_1

$m = -1/3$

$m_{//} = -1/3$

$y - y_1 = m(x - x_1)$

$y+8=-\frac{1}{3}(x-12)$

$y+8=-\frac{1}{3}x+4$ $\quad y=-\frac{1}{3}x-4$

③ $y = -2x + 3$ and the parallel line equation passes through (18, -31).

x_1 y_1

$m = -2$

$m_{//} = -2$

$y - y_1 = m(x - x_1)$

$y+31=-2(x-18)$

$y+31=-2x+36$ $\quad y=-2x+5$

④ $y = \frac{3}{5}x + 1$ and the parallel line equation passes through (30, 24).

x_1 y_1

$m = 3/5$

$m_{//} = 3/5$

$y - y_1 = m(x - x_1)$

$y-24=\frac{3}{5}(x-30)$

$y-24=\frac{3}{5}x-18$ $\quad y=\frac{3}{5}x+6$

⑤ $y = -\frac{2}{3}x + 1$ and the parallel line equation passes through (-15, 6).

x_1 y_1

$m = -2/3$

$m_{//} = -2/3$

$y - y_1 = m(x - x_1)$

$y-6=-\frac{2}{3}(x+15)$

$y-6=-\frac{2}{3}x-10$ $\quad y=-\frac{2}{3}x-4$

⑥ $y = \frac{3}{7}x + 1$ and the parallel line equation passes through (-35, -22).

x_1 y_1

$m = 3/7$

$m_{//} = 3/7$

$y - y_1 = m(x - x_1)$

$y+22=\frac{3}{7}(x+35)$

$y+22=\frac{3}{7}x+15$ $\quad y=\frac{3}{7}x-7$

⑦ $y = -x - 5$ and the parallel line equation passes through (-7, 10).

x_1 y_1

$m = -1$

$m_{//} = -1$

$y - y_1 = m(x - x_1)$

$y-10=-1(x+7)$

$y-10=-1x-7$ $\quad y=-1x+3$

⑧ $y = 3x - 4$ and the parallel line equation passes through (-6, -11).

x_1 y_1

$m = 3$

$m_{//} = 3$

$y - y_1 = m(x - x_1)$

$y+11=3(x+6)$

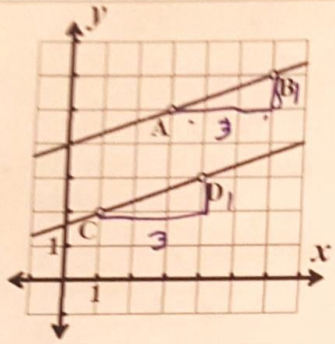
$y+11=3x+18$ $\quad y=3x+7$

Name: _____ Date: _____

PARALLELS OR NOT?

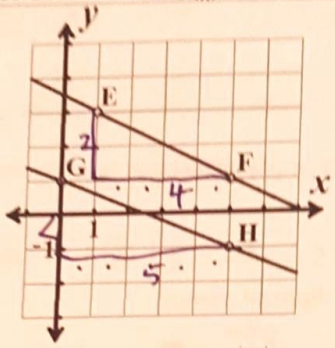
same slope = parallel

Directions: **For #1-9, find the slope of each line in simplest form. If the slopes are the same, then circle yes for PARALLEL (||). If not, then circle no.**

① 

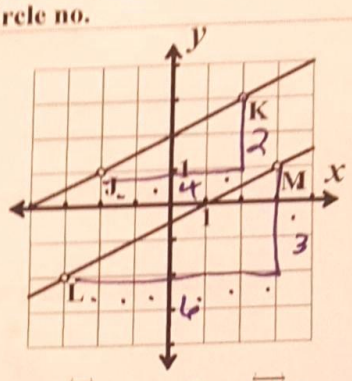
Slope $\overline{AB}$ = $\frac{1}{3} = \frac{1}{3}$ Slope $\overline{CD}$ = $\frac{1}{3} = \frac{1}{3}$

Is $\overline{AB} \parallel \overline{CD}$? (Yes) or No

② 

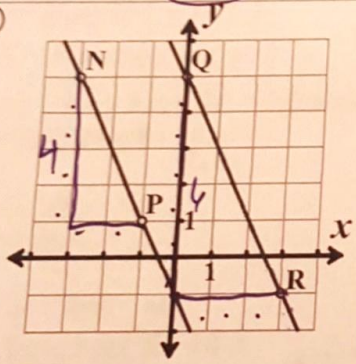
Slope $\overline{EF}$ = $\frac{2}{4} = \frac{-1}{2}$ Slope $\overline{GH}$ = $\frac{-2}{5} = \frac{-2}{5}$

Is $\overline{EF} \parallel \overline{GH}$? Yes or (No)

③ 

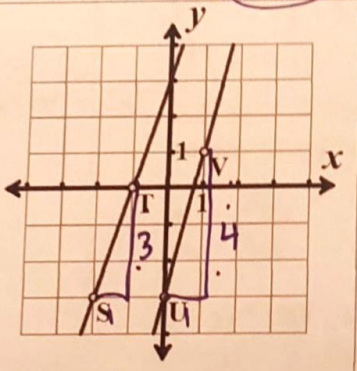
Slope $\overline{JK}$ = $\frac{2}{4} = \frac{1}{2}$ Slope $\overline{LM}$ = $\frac{3}{6} = \frac{1}{2}$

Is $\overline{JK} \parallel \overline{LM}$? (Yes) or No

④ 

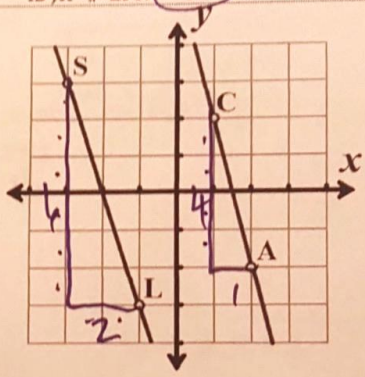
Slope $\overline{NP}$ = $\frac{-4}{2} = \frac{-2}{1}$ Slope $\overline{QR}$ = $\frac{-6}{3} = \frac{-2}{1}$

Is $\overline{NP} \parallel \overline{QR}$? (Yes) or No

⑤ 

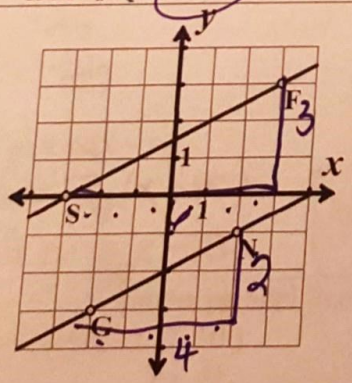
Slope $\overline{ST}$ = $\frac{3}{1} = 3$ Slope $\overline{UV}$ = $\frac{4}{1} = 4$

Is $\overline{ST} \parallel \overline{UV}$? Yes or (No)

⑥ 

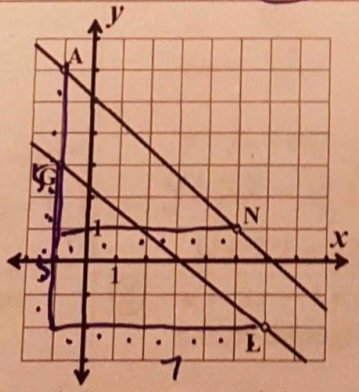
Slope $\overline{SL}$ = $\frac{-6}{2} = -3$ Slope $\overline{CA}$ = $\frac{-4}{1} = -4$

Is $\overline{SL} \parallel \overline{CA}$? Yes or (No)

⑦ 

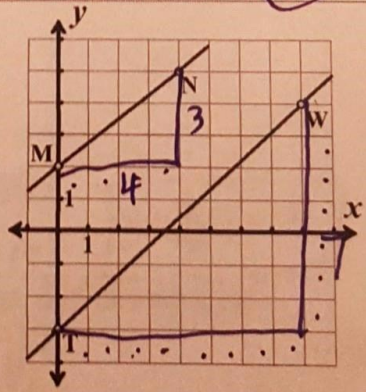
Slope $\overline{SF}$ = $\frac{3}{6} = \frac{1}{2}$ Slope $\overline{GN}$ = $\frac{2}{4} = \frac{1}{2}$

Is $\overline{SF} \parallel \overline{GN}$? (Yes) or No

⑧ 

Slope $\overline{AN}$ = $\frac{-5}{6} = \frac{5}{-6}$ Slope $\overline{GL}$ = $\frac{-5}{7} = \frac{5}{-7}$

Is $\overline{AN} \parallel \overline{GL}$? Yes or (No)

⑨ 

Slope $\overline{MN}$ = $\frac{3}{4} = \frac{3}{4}$ Slope $\overline{TW}$ = $\frac{7}{8} = \frac{7}{8}$

Is $\overline{MN} \parallel \overline{TW}$? Yes or (No)