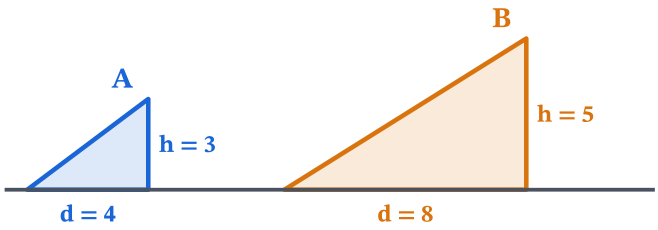
Names (pair) _____ Date _____

Slope

Example



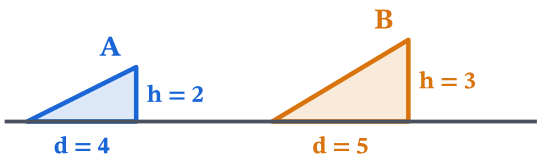
Ramp B is higher, but ramp A is **steeper**: for every metre forward A rises $3 \div 4 = 0.75$ m, and B only $5 \div 8 \approx 0.63$ m. Steepness is decided by the **ratio** of height to length, not by the height or the difference.

Remember

Steepness is the ratio $h \div d$. For a line it is the **slope** $m = \frac{rise}{run}$: the change in y divided by the change in x. It is the same along the whole line, for any two of its points.

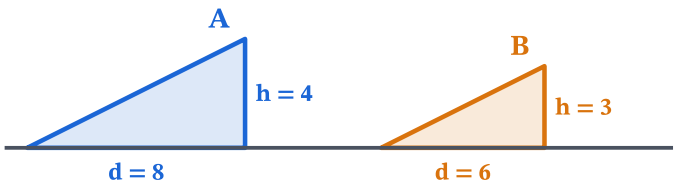
1 IN PAIRS Which ramp is steeper? Work out the ratios $h \div d$ and circle.

a)



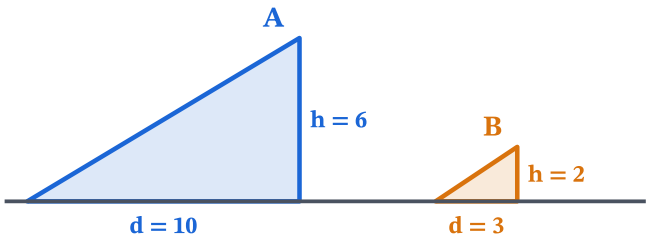
A: ☐ B: ☐ A / B / same

b)



A: ☐ B: ☐ A / B / same

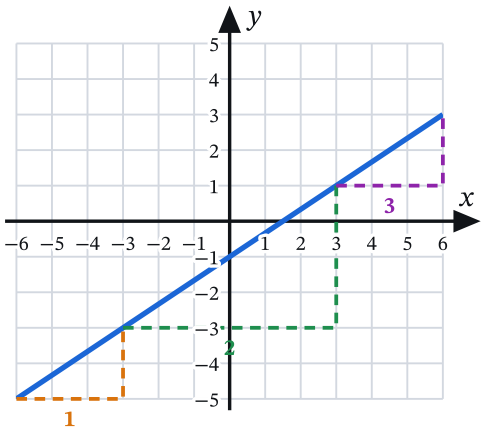
c)



A: ☐ B: ☐ A / B / same

Names (pair) _____ Date _____

2 ON YOUR OWN There are three slope triangles on the line. For each, read the run and the rise and work out the ratio. What do you notice?



triangle	run	rise	$\frac{rise}{run}$
1			
2			
3			

3 ON YOUR OWN Work out m from two points, then swap the order of the points. Does m change?

$A(1, 2)$, $B(4, 8)$

$$m = \frac{\square}{\square} = \square$$

swapped: $m = \frac{\square}{\square} = \square$

$C(-2, 3)$, $D(2, 1)$

$$m = \frac{\square}{\square} = \square$$

swapped: $m = \frac{\square}{\square} = \square$

4 ON YOUR OWN Slope with units. Fill in.

Situation	m	unit	What does it mean?
taxi: 1.20 € per km			
candle: 2 cm less every hour			
pool: 50 L every minute			

The Line Explorer app · otooly.com/line-explorer

Steepness mode: compare the ramps, turn on Ratios and Steps. Then press “To the coordinate plane”.

The Geoboard app · otooly.com/geoboard

Functions board: stretch a band from $(-2, -1)$ to $(4, 3)$ and count the steps between the pegs.

★ ON YOUR OWN **Exit card.** The line through $(0, 1)$ and $(2, 7)$ has $m =$ $\square$