Step Along the Slope: teacher script

GL06-V1 · GL06 Use the slope: steps and points on one line · teachers only. Without a screen, read each Say line and draw each Draw step on the board. About 55 seconds as a video.

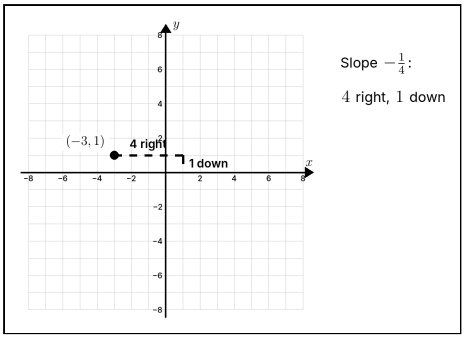
01



Say. Stepping along a slope. The bottom of the slope is the step across, the top is the step up or down. And equal slopes mean one line.

Draw. Write the title “Step Along the Slope” and the steps: 1. Bottom: across; 2. Top: up or down; 3. Equal slopes, one line.

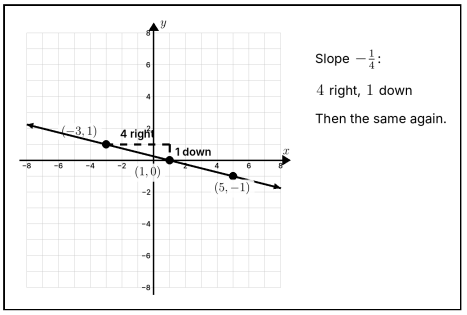
02



Say. Graph the line through negative 3, 1 with slope negative one quarter. That means 4 to the right and 1 down.

Draw. Clear the board and draw a grid with axes from -8 to 8. Plot (-3, 1) and label it “(−3, 1)”. Draw a dashed segment from (-3, 1) to (1, 1), labelled “4 right”. Draw a dashed segment from (1, 1) to (1, 0), labelled “1 down”. Beside the grid, write “Slope −1/4:”. Beside the grid, write “4 right, 1 down”.

03



Say. That reaches the point 1, 0. The same again gives 5, negative 1. Then draw the line.

Draw. Plot (1, 0) and label it “(1, 0)”. Plot (5, -1) and label it “(5, −1)”. Draw the line x + 4y = 1. Beside the grid, write “Then the same again.”.

04

Trap $m = -\frac{1}{4}$

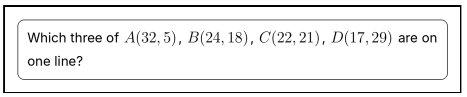
$\times$ 1 right, 4 down

$\checkmark$ 4 right, 1 down

Say. Watch for the trap: the slope the wrong way round. The bottom number is the step across.

Draw. Clear the board. Write “Trap” and m = −1/4. Below, write 1 right,\ 4 down and cross it out ×. Then write 4 right,\ 1 down with a tick ✓.

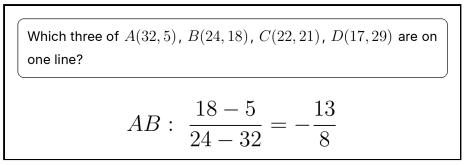
05



Say. Which three of these four points are on one line?

Draw. Clear the board. Write “Which three of A(32, 5), B(24, 18), C(22, 21), D(17, 29) are on one line?” in a box at the top.

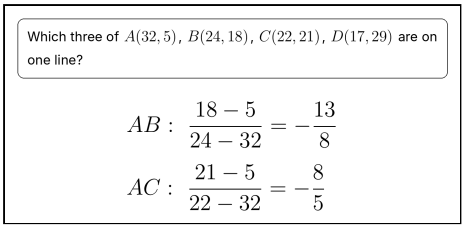
06



Say. Compare slopes from A. A to B is negative 13 over 8.

Draw. Write AB:\ (18 − 5)/(24 − 32) = −13/8 on the next line.

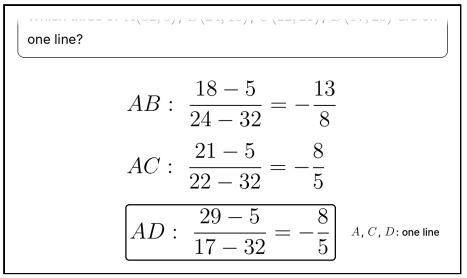
07



Say. A to C is negative 8 over 5.

Draw. Write AC:\ (21 − 5)/(22 − 32) = −8/5 on the next line.

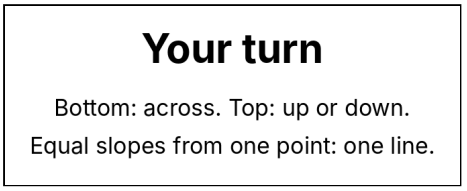
08



Say. And A to D is negative 8 over 5 again. The same slope, so A, C and D are on one line.

Draw. Write AD:\ (29 − 5)/(17 − 32) = −8/5 and box it on the next line. Beside it, write “A, C, D: one line”.

09



Say. Now it is your turn. The bottom is across, the top is up or down.

Draw. Point to today’s activity: Bottom: across. Top: up or down. Equal slopes from one point: one line.