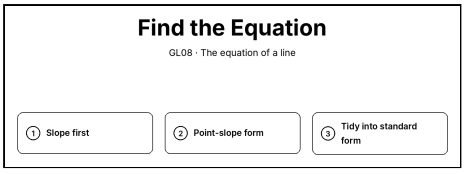
Find the Equation: teacher script

GL08-V1 · GL08 The equation of a line · teachers only. Without a screen, read each Say line and draw each Draw step on the board. About 73 seconds as a video.

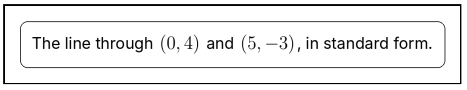
01



Say. The equation of a line. Find the slope first. Write the point slope form. Then tidy it into standard form, and check.

Draw. Write the title “Find the Equation” and the steps: 1. Slope first; 2. Point-slope form; 3. Tidy into standard form.

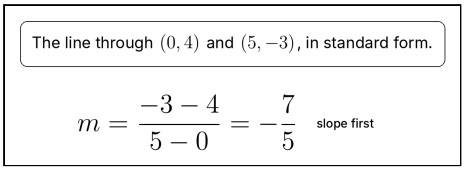
02



Say. Find the line through 0, 4 and 5, negative 3, in standard form.

Draw. Clear the board. Write “The line through (0, 4) and (5, −3), in standard form.” in a box at the top.

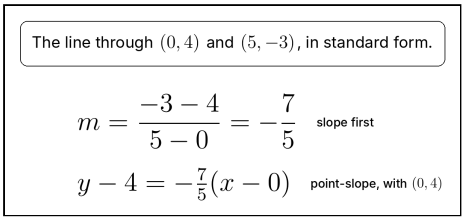
03



Say. Slope first: negative 3 minus 4, over 5 minus 0, is negative 7 fifths.

Draw. Write m = (−3 − 4)/(5 − 0) = −7/5 on the next line. Beside it, write “slope first”.

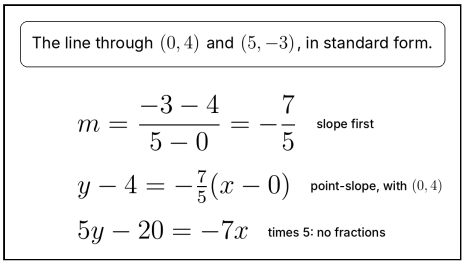
04



Say. A point x, y on the line has the same slope from 0, 4. So y minus 4 equals negative 7 fifths times x minus 0, using any point of the line.

Draw. Write y − 4 = −7/5(x − 0) on the next line. Beside it, write “point-slope, with (0, 4)”.

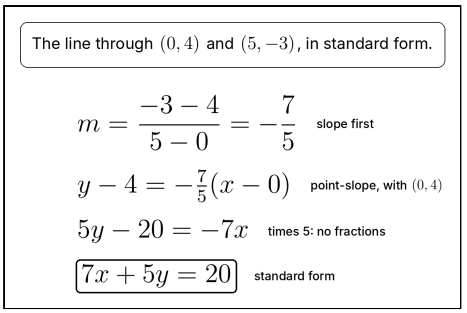
05



Say. Multiply both sides by 5: 5 y minus 20 equals negative 7 x.

Draw. Write 5y − 20 = −7x on the next line. Beside it, write “times 5: no fractions”.

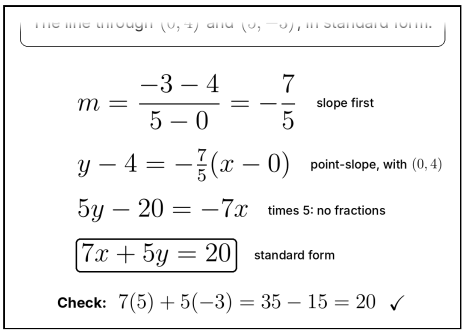
06



Say. Collect x and y on the left: 7 x plus 5 y equals 20. That is standard form: whole numbers, and a positive x.

Draw. Write 7x + 5y = 20 and box it on the next line. Beside it, write “standard form”.

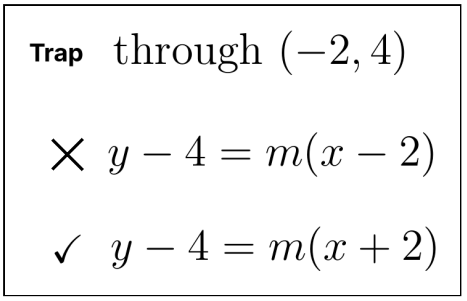
07



Say. Now check with the other point: 7 times 5 plus 5 times negative 3 is 20.

Draw. Below, write “Check: 7(5) + 5(−3) = 35 − 15 = 20” and tick it ✓.

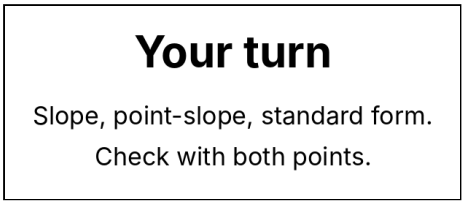
08



Say. Watch for the trap: a sign slip with a negative coordinate. Through negative 2, 4, it is x minus negative 2, which is x plus 2.

Draw. Clear the board. Write “Trap” and through (−2, 4). Below, write y − 4 = m(x − 2) and cross it out ×. Then write y − 4 = m(x + 2) with a tick ✓.

09



Say. Now it is your turn. Slope first, then point slope form, then standard form, and check.

Draw. Point to today’s activity: Slope, point-slope, standard form. Check with both points.