

Slope Direction Detectives

Use graphs to distinguish positive, negative and zero slope

GRADE 7 • 7.PFA.1.b

7.PFA.1.b "Identify and describe a line with a slope that is positive, negative, or zero (0), given a graph."

NAME _____

DATE _____

Build understanding

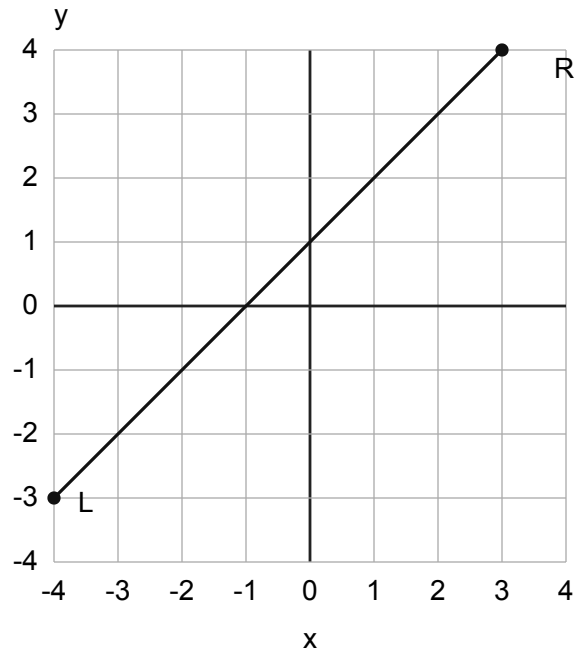
Read from left to right: rising means positive slope, falling means negative slope, and level means zero slope. Look at how y changes as x increases, not whether the line lies above or below an axis. The displayed portions represent the lines described.

Worked example

Read the line from left to right. Does it rise, fall or stay level? Name the slope type.

As x increases from -2 to 2, y increases from -1 to 3. The line rises from left to right; its position above or below an axis is not the rule.

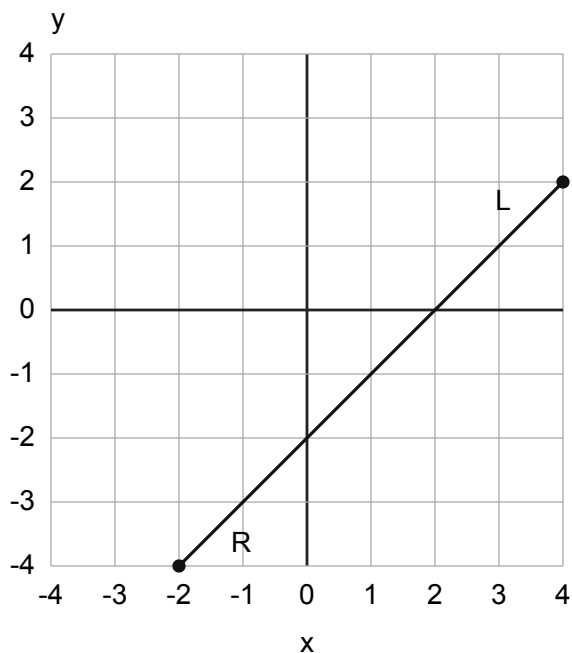
It rises, so its slope is positive.



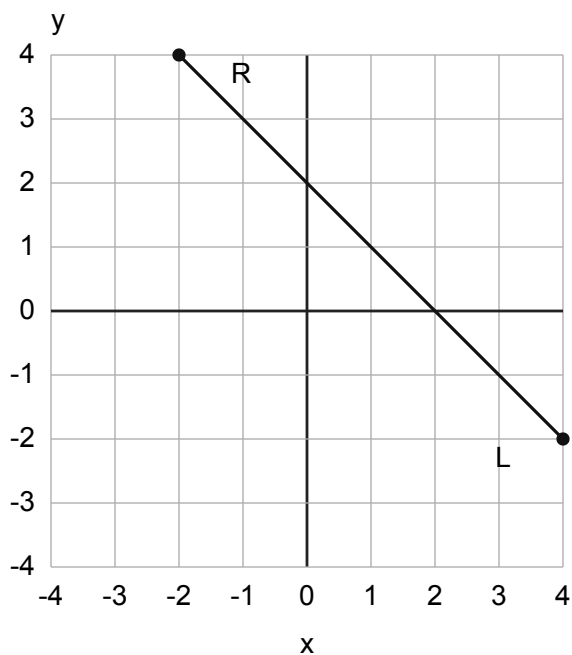
Read each given graph from left to right. Use coordinate evidence when requested; no new graphs are required.

1. Practice

Identify the slope type from this graph. Describe how y changes as you move right, and give two points as evidence.

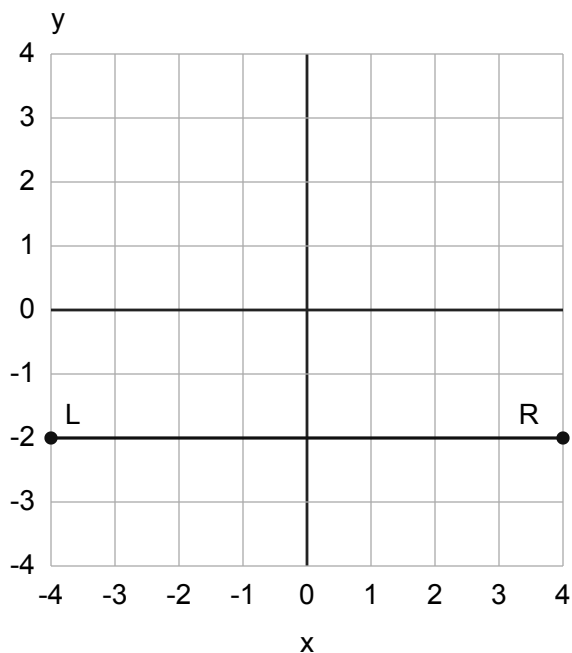
**2. Practice**

Read this line from left to right. Identify its slope type and describe the direction.

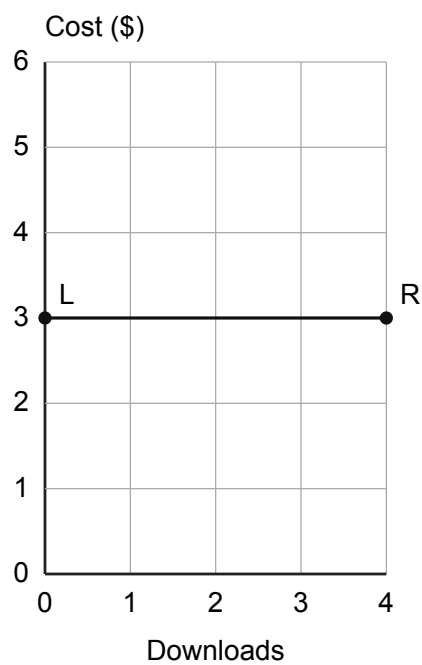


3. Practice

This line is below the x-axis. Identify its slope type and explain using the change in y.

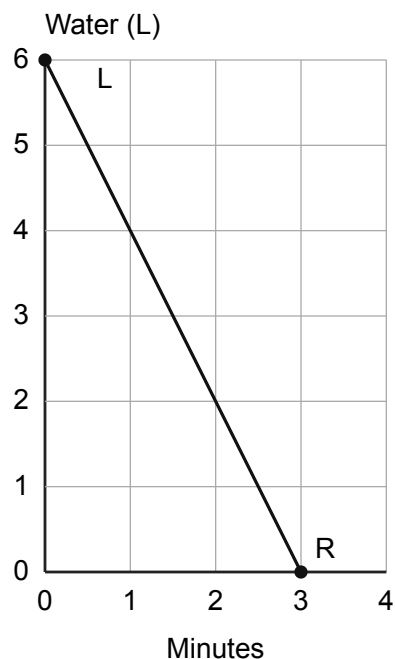
**4. Practice**

This graph shows a subscription cost for 0 to 4 downloads. Identify the slope type and describe the line direction.



5. Apply

The graph shows water remaining in a tank during its first 3 minutes of draining. Identify the slope type and explain its meaning in context.

**6. Apply**

Use the subscription graph in Task 4. Compare the costs at 1 and 4 downloads. Explain why that change supports your slope classification.

7. Challenge

A student says the line in Task 3 has negative slope because it is below the x-axis. Correct the claim and contrast it with Task 2.

Require a slope type and a description tied to the actual graph. Accept equivalent coordinate evidence. L and R mark displayed endpoints. Context graphs are restricted to the stated ranges; do not extend the tank model past empty.

Task 1

Positive. For example, $(0, -2)$ to $(2, 0)$ moves right and up.

Task 2

Negative. As x increases, y decreases; the line falls from left to right.

Task 3

Zero. y stays at -2 as x changes, so the line is horizontal.

Task 4

Zero; it stays level at \$3.

Task 5

Negative; the water remaining decreases as time increases. The segment falls from $(0, 6)$ to $(3, 0)$: 6 liters decrease to 0 liters in 3 minutes.

Task 6

Both cost \$3, so the change in cost is 0. From $(1, 3)$ to $(4, 3)$, x changes but y does not. That gives zero slope.

Task 7

Task 3 has zero slope because y stays constant.
Task 2 has negative slope because y decreases as x increases. Height alone does not determine slope.