Steady Change, Straight Line

Model functions, find slope and starting value | Grade 8 Math

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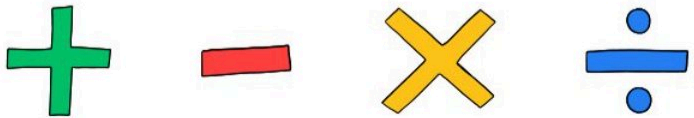
Today we will...

WE ARE LEARNING TO

- Build y = mx + b from words, table, or graph
- Find rate of change m and initial value b
- Explain what m and b mean in real life

SUCCESS LOOKS LIKE

- ✓ I can find m with (y2-y1)/(x2-x1)
- ✓ I can find b and write y = mx + b
- ✓ I can tell what m and b mean on graph

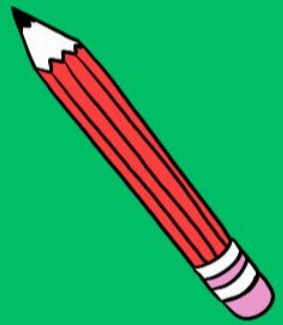


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$a^2+b^2=c^2$

From story to equation

Story shows steady change each step → Rate m = change in y over change in x → Start b = y when x = 0 → Model with y = mx + b → Check m and b on graph and table



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Linear function parts

m = rate of change

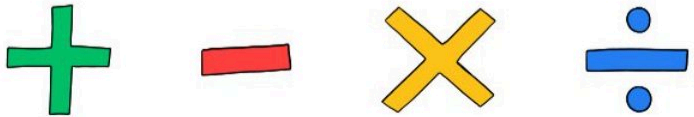
table: steady step

words: per + to start

y = mx + b

b = starting value

graph: straight line



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$a^2+b^2=c^2$

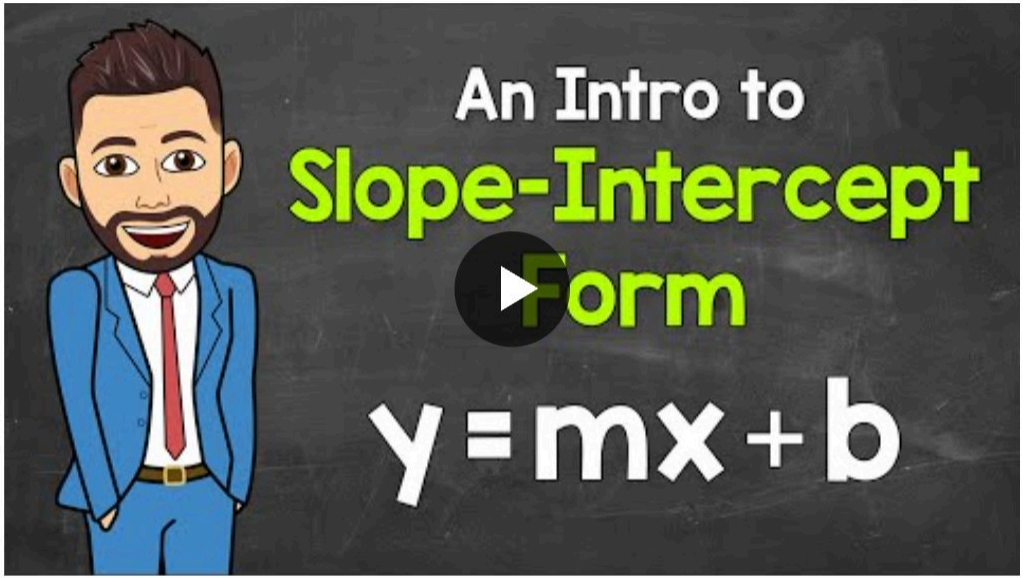
Think, pair, share

A bike rental is $8 to start plus $4 per hour. After 3 hours, what do you pay? What stays the same, what grows?



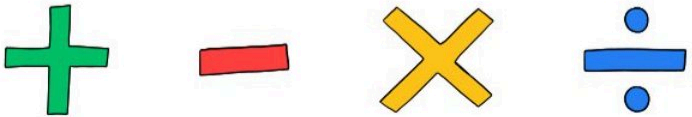
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Watch: m and b in y = mx + b



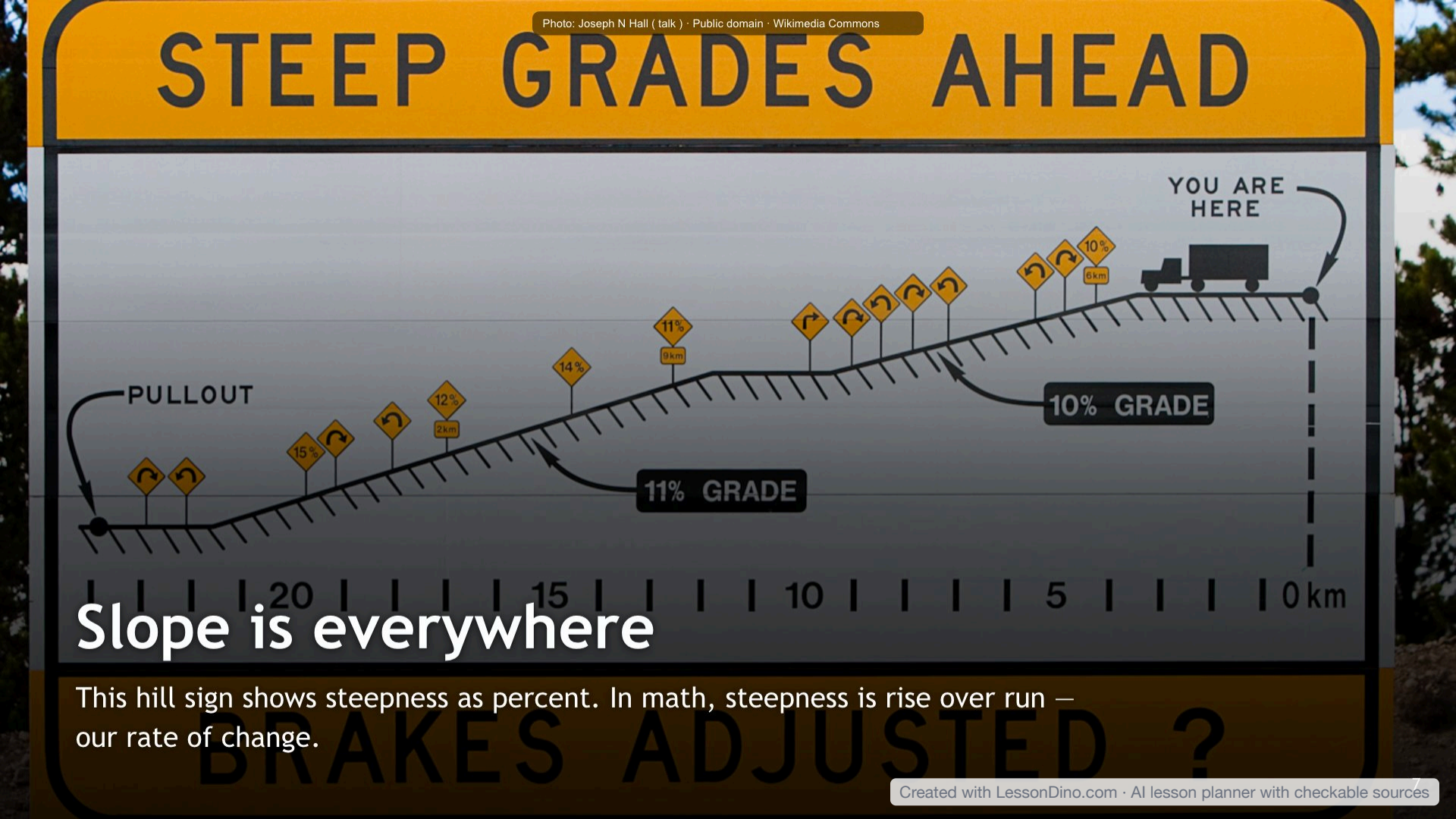
▶ 1:00 – 6:00

- Listen for rate as per
- Spot starting value at x = 0
- See equation match graph



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Slope is everywhere

This hill sign shows steepness as percent. In math, steepness is rise over run — our rate of change.

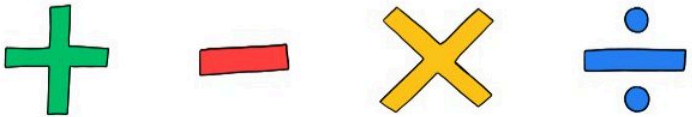
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Watch: Slope as rate of change



▶ 1:00 – 6:00

- See slope from two points
- Link table steps to steepness
- Track units like dollars per hour



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$a^2+b^2=c^2$

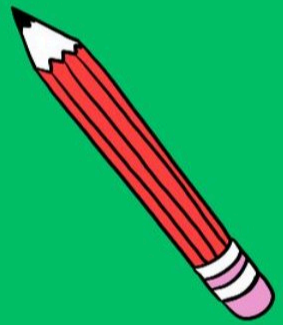
Your task

In pairs, model savings: start with $15, add $5 each week. Write y = mx + b and predict week 6.

1. Find m per week and b at start
2. Make table for weeks 0-4
3. Sketch line and label m, b
4. Explain what m and b mean here

10 min

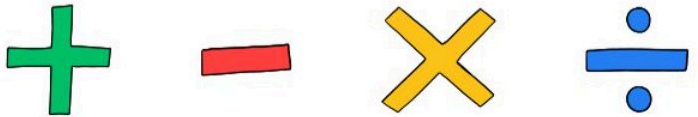
In pairs

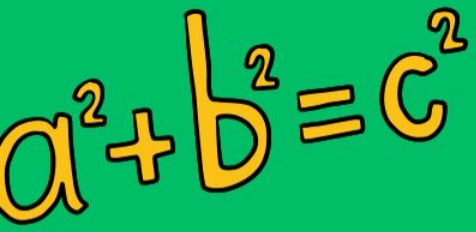


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BIG IDEA

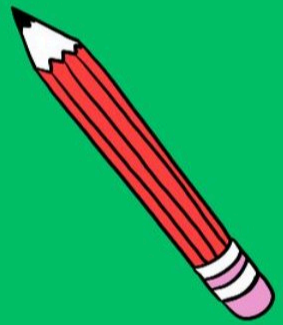
m tells how fast it changes, b tells where it starts.





What matters more?

For planning money, which helps you more — rate of change or initial value?



- **A** Rate of change
- **B** Initial value
- **C** Both equally
- **D** Depends on situation

Vote with your hands, then explain why.

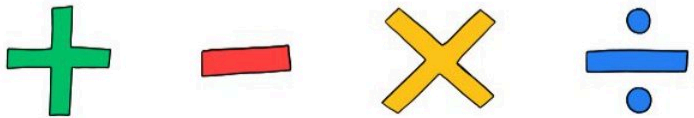
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Quick quiz

1. Points (0,5) and (2,13). What is rate of change m?

2. For y = 4x + 5, what is initial value b?

3. Savings y = 5x + 15. What do 5 and 15 mean?



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