LESSON MAKER PRO

Start and Change

Find the rate and the starting value.

HIGH SCHOOL · MT.CORE.ALG.LIN.2

MT.CORE.ALG.LIN.2 "Understand slope as a rate of change and y-intercept as the initial value."

NAME _____ DATE _____

SLOPE AND STARTING VALUE

Slope tells you how much y changes when x increases by 1. The y-intercept is the value of y when x is 0, so it shows the starting value.

WORKED EXAMPLE

Find the slope and y-intercept from the table.

x	y
0	16
8	24

1. Change in y: 24 - 16 = 8.
2. Change in x: 8 - 0 = 8.
3. Slope = 8/8 = 1. At x = 0, y = 16.

Answer: Slope: 1; y-intercept: 16.

PRACTICE 4 problems

1 Find the slope and y-intercept of y = 5x + 4.

ANSWER _____

2 Find the slope and y-intercept of y = -3x + 9.

ANSWER _____

3 Find the slope and y-intercept of y = 1/2x - 6.

ANSWER _____

4 A line passes through (0, -4) and (5, 11). Find its slope and y-intercept.

ANSWER _____

APPLY IT Show your work

1 A ticket app charges $18 per concert ticket plus one $5 service fee. Find the slope and y-intercept of total cost versus tickets.

WORK SPACE

ANSWER _____

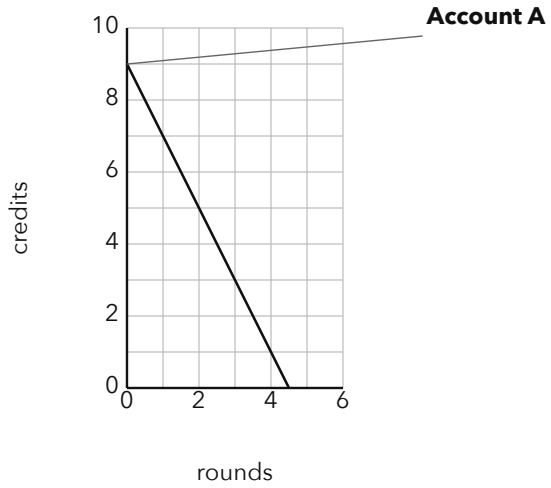
2 Your phone is at 86% when you start watching videos. After 2 hours, it is at 62%. If the charge drops at a steady rate, find the slope and y-intercept of charge versus hours.

WORK SPACE

ANSWER _____

CHALLENGE One step up

The graph shows Account A's game credits after x rounds. Account B has y = -x + 6 credits. After how many rounds do their balances match? Which account starts with more credits?



WORK SPACE AND ANSWER

Start and Change

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the slope and y-intercept of y = 5x + 4.	**Slope: 5; y-intercept: 4.**
2	Find the slope and y-intercept of y = -3x + 9.	**Slope: -3; y-intercept: 9.**
3	Find the slope and y-intercept of y = 1/2x - 6.	**Slope: 1/2; y-intercept: -6.**
4	A line passes through (0, -4) and (5, 11). Find its slope and y-intercept.	**Slope: 3; y-intercept: -4.**

PART 2 · APPLY IT

1. **Slope: $18 per ticket; y-intercept: $5.** The cost increases $18 for each ticket. The $5 fee is the cost for zero tickets.
2. **Slope: -12 percentage points per hour; y-intercept: 86%.** The charge changes by 62 - 86 = -24 percentage points in 2 hours, so the slope is -24/2 = -12. The charge at zero hours is 86%.

CHALLENGE

They match after 3 rounds, at 3 credits each. Account A starts with more credits: 9 versus 6.

Accept equivalent slope units, such as dollars per ticket or percentage points per hour. The phone's slope must be negative.