

Algebra 1 - Slope and Rate of Change - Worksheet

Common Core F-IF.B.4, F-IF.B.6, F-LE.A.1b · maths-pdf.fr/en/

Name: _____ Class: _____ Date: ____/____/____

Use these 20 problems to master slope and rate of change (Common Core F-IF.B.6, F-IF.B.4, and F-LE.A.1b). You will find slope from points, graphs, and tables, interpret rates in context, and compute the average rate of change of a function over an interval. They move from quick warm-ups to multistep word problems, so slow down on the last six and check that each answer makes sense.

Algebra 1 · Common Core State Standards: **F-IF.B.4, F-IF.B.6, F-LE.A.1b**

Exercise 1 - Positive slope

Find the slope of the line through $(2,5)$ and $(5,17)$.

Exercise 2 - Negative slope

Find the slope of the line through $(-2,5)$ and $(3,-5)$.

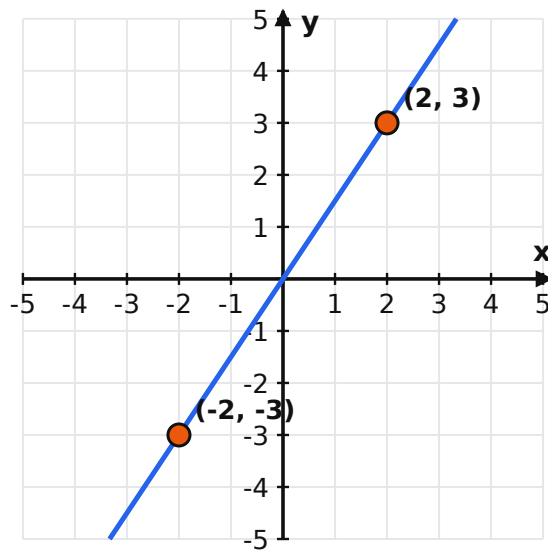
Exercise 3 - Zero slope

Find the slope of the line through $(3,4)$ and $(7,4)$.

Exercise 4 - Vertical line

Find the slope of the line through $(2,1)$ and $(2,6)$.

Exercise 5 - Slope from a graph



A line on the coordinate plane.

Find the slope of the line.

Exercise 6 - Slope from a table

x	y
0	5
2	11
4	17
6	23

A table of a linear function.

Find the slope of the linear function shown in the table.

Exercise 7 - Classify the slope

Without a graph, decide whether each line through the given points has positive, negative, zero, or undefined slope: (a) $(1,3), (5,3)$ (b) $(2,7), (2,-1)$ (c) $(0,4), (3,1)$ (d) $(-2,-1), (4,5)$.

Exercise 8 - Ramp

A wheelchair ramp rises 2 feet over a horizontal distance of 24 feet. Find its slope.

Exercise 9 - Missing coordinate

The line through $(2,3)$ and $(6,y)$ has slope 2. Find y .

Exercise 10 - Is it linear?

x	y
1	3
2	7
3	12
4	18

A table.

Decide whether the table represents a linear function. Explain with rates of change.

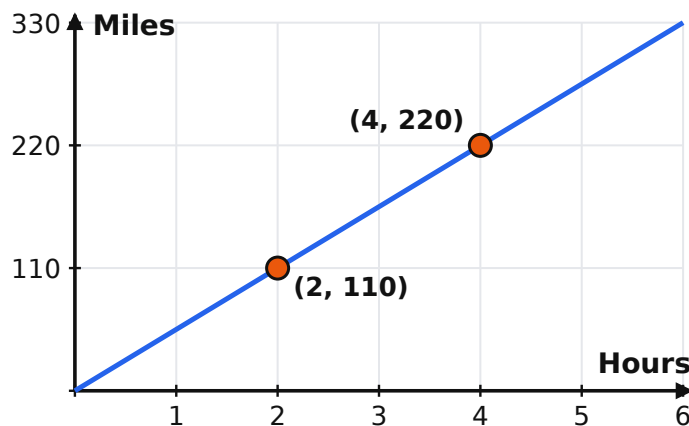
Exercise 11 - Fraction coordinates

Find the slope of the line through $(-\frac{1}{2}, 1)$ and $(\frac{3}{2}, 5)$.

Exercise 12 - Savings rate

Jamal had \$50 after week 2 and \$95 after week 5. Assuming a constant rate, find his savings rate in dollars per week.

Exercise 13 - Road trip graph



Distance on a road trip.

The graph shows the distance of a car from home. Find the slope and explain what it means.

Exercise 14 - Meaning of the intercept

A trampoline park charges $y = 15 + 8x$ dollars for x hours. Explain the slope and the y-intercept in this context.

Exercise 15 - Average rate of change

A skateboard ramp's height in inches is modeled by $h(x) = 2x^2 - x$, where x is the horizontal distance in feet. Find the average rate of change of the height from $x = 2$ to $x = 5$.

Exercise 16 - Falling temperature

At 2 p.m. the temperature was 68°F . At 6 p.m. it was 44°F . Find the average rate of change and interpret it.

Exercise 17 - Plant growth

Week	Height (in.)
1	3
2	5
3	7
4	9

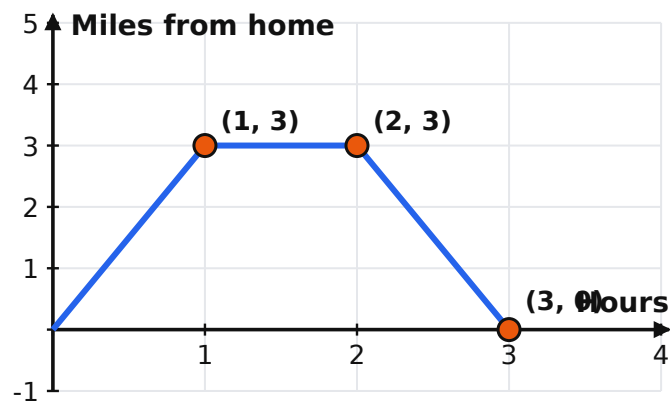
Height of a bean plant.

A bean plant's height is recorded in the table. Find the rate of change and write what it means.

Exercise 18 - Compare speeds

Car A drives 150 miles in 3 hours. Car B drives 220 miles in 5 hours. Find each average speed and tell which car is faster.

Exercise 19 - Hiker's trip



A hiker's distance from home.

The graph shows a hiker's distance from home. Find the rate of change on each interval: 0 to 1 hour, 1 to 2 hours, and 2 to 3 hours. Describe what the hiker is doing.

Exercise 20 - Projectile

A ball's height in feet is $h(t) = -16t^2 + 64t$. Find the average rate of change from $t = 0$ to $t = 2$ and from $t = 1$ to $t = 3$. Explain the second answer.

Exercise 21 - Not constant growth

x	y
0	2
1	4
2	8
3	16

A table of values.

Find the rates of change between consecutive rows. Is the rate constant? What happens to the rate?