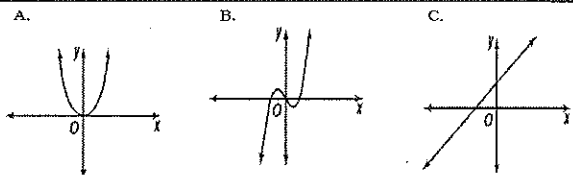


8.F.3 Interpret the equation $y=mx+b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.

When graphed, which situation's data would be linear?

- A) The temperature of the roof of a house every hour for 24 hours.
- B) A person's body temperature every hour for a year.
- C) The temperature of water rising 3°F every hour.
- D) The daily temperature of a city for a year.



Which graph represents a linear function?

- a) Graph A
- b) Graph B
- c) Graph C
- d) All three Graphs

What is the equation of the line passing through the points (5, 5) and (10, 5)?

A) $x=5$

B) $y=5$

C) $y=x+5$

D) $y=x+10$

Handwritten work:

x	y
5	5
10	5

$m = \frac{0}{5} = 0$

$y = mx + b$

$5 = 0(5) + b$

$5 = b$

Which equation represents a nonlinear function?

- a) $y = -3x - 5$
- b) $y = 0.75$
- c) $y = 3x + x^2$
- d) $y = \frac{1}{2}x + 2$

A given function is defined by the equation $y = 5x+6$

Part A: Does the equation $y = 5x+6$ define a linear function? Explain your answer.

Yes it is linear, because it shows that x is constantly multiplied by 5 after beginning at 6 to get y .

Part B: Two functions are considered parallel if their slopes are equivalent.

Write the equation for a function that is parallel to the given function with a y -intercept of -2. Explain the equation you wrote.

$y = 5x - 2$ The slopes must be equivalent $b = -2$ for the lines to be parallel, so $m = 5$. The y -intercept is -2, so $b = -2$.

Part C: Give an example of an equation that is not linear and explain why it is not linear.

$y = 5x^2 + 6$ When x is raised to a power other than 1, then it will not change constantly, so it won't be linear.

8.F.3 Interpret the equation $y=mx+b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.

Which table represents a linear function?

A.

x	y
-4	8
-2	0
0	-4
2	-6

Handwritten annotations: $+2 \leftarrow$ between rows 1 and 2, $+2 \leftarrow$ between rows 2 and 3, $+2 \leftarrow$ between rows 3 and 4. To the right of the table, -8 is written next to the first row, -4 next to the second row, and -2 next to the third row.

B.

x	y
-4	2
-2	0
0	2
2	4

Handwritten annotations: $+2 \leftarrow$ between rows 1 and 2, $+2 \leftarrow$ between rows 2 and 3, $+2 \leftarrow$ between rows 3 and 4. To the right of the table, -2 is written next to the first row, $+2$ next to the second row, and $+2$ next to the third row.

C.

x	y
-4	2
-2	0
0	-4
0	-2

Handwritten annotations: $+2 \leftarrow$ between rows 1 and 2, $+2 \leftarrow$ between rows 2 and 3, $+0 \leftarrow$ between rows 3 and 4. To the right of the table, -2 is written next to the first row, -4 next to the second row, and $+2$ next to the third row.

D.

x	y
-4	4
-2	2
0	0
2	-2

Handwritten annotations: $+2 \leftarrow$ between rows 1 and 2, $+2 \leftarrow$ between rows 2 and 3, $+2 \leftarrow$ between rows 3 and 4. To the right of the table, -2 is written next to the first row, -2 next to the second row, and -2 next to the third row.

Parker states that any function written without exponents must be linear. Which function proves Parker's statement is incorrect?

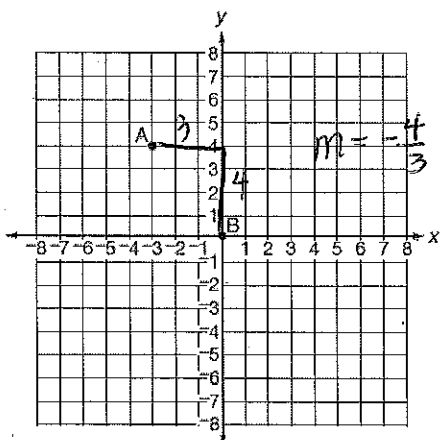
A. $y = 5x + 3$

B. $y = x^5 + 3$

C. $y = \frac{x}{3} + 5$

D. $y = \frac{3}{x} + 5$

Which equation represents the line that crosses through points A and B on the graph below?



A. $y = -\frac{4}{3}x$

B. $y = -\frac{3}{4}x$

C. $y = \frac{3}{4}x$

D. $y = \frac{4}{3}x$

Which equation represents the function shown in the table below?

x	2	4	6	8	10	12	14
y	3	8	13	18	23	28	33

Handwritten annotations: $+2$ above the x-values, $+5$ below the y-values.

A. $y = 2/5x - 2$

B. $y = -2/5x + 2$

C. $y = 5/2x + 2$

D. $y = 5/2x - 2$

Handwritten work:

$$m = \frac{5}{2}$$

$$y = mx + b$$

$$3 = \frac{5}{2}(2) + b$$

$$3 = 5 + b$$

$$-5 \quad | \quad -5$$

$$-2 = b$$