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.

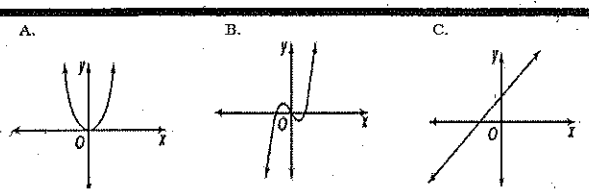
When graphed, which situation's data would be linear?

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

straight line

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) $y = x + 10$

x	y
5	5
10	5

$5 < 10$? $5 > 0$

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

* horizontal line

$y =$ ___

Which equation represents a nonlinear function?

a) $y = -3x - 5$ Linear

b) $y = 0.75$ Linear

c) $y = 3x + x^2$ x^2 = non linear

d) $y = \frac{1}{2}x + 2$ Linear

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 because it is in slope intercept form $y = mx + b$ where m represents slope (constant rate of change)

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.

$y = 5x - 2$

slope, y int.

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

$y = x^2$

x	y
-2	4
0	0
2	4

+2, +2; -4, +4

plug in x & solve for y.

$y = (-2)^2$ $y = 4$

$y = 0^2$ $y = 0$

$y = 2^2$ $y = 4$

Not linear b/c not a constant rate of change.