

Unit 1 Review

1. [D] $2 = \text{now}$ and $2 + b = 8$
 $8 = \text{now}$ and $8 + b = 14$
 $14 = \text{now}$ and $14 + b = 20$

2. $f(x) = 4x$ $0 = 4(0)$ $0 = 0$ ✓
 $3.5 = 4(1)$ $3.5 \neq 4$
 [B] $8 = 4(2)$ $8 = 8$ ✓
 $2 = 4(.5)$ $2 = 2$ ✓

3. $f(x) = -1.5x - 1$ and $x = -2$

$$f(x) = -1.5(-2) - 1 = 2 \rightarrow y$$

$\begin{matrix} x & y & & x & & y \\ & & \swarrow & & \searrow & \\ & & x & & y & \end{matrix}$

(-2, 2)

[C]

4. [B] - Domain is only used once!

5. $f(n) = -12.25 + 0.25n$ [C]

- not A because you must add the common difference to the first term in the sequence.

6. [D] A - Exponential
B + C - Quadratic
(You can graph points to prove it)

7. [D] - not A because 3,492 (y-intercept) represents the initial value in 1964.

- can't determine b w/ info given
- not C because the value 461.19 is positive.

8. $x - 3y = 6$

Step 1: rearrange to Slope-Intercept form so you know the slope + y-intercept.

$$\begin{array}{r} x - 3y = 6 \\ -x \quad -x \\ \hline -3y = -x + 6 \\ \quad -3 \quad -3 \end{array}$$

$y = \frac{1}{3}x - 2$ - matches graph C - be careful not to "get stumped" by D - same y-intercept, but slope of that graph is $\frac{3}{1}$.

9. - Slope of the function graphed below is 2. (rise 2 + run 1 = $2/1 = 2$),

- Draw in other line by putting a dot on the x axis at 2 + y axis at 4. Now, determine the slope of that line.

Original slope = 2. New Line = -2. (Ans. 2)

10. Percent Change Formula

$$\frac{\text{New} - \text{Old}}{\text{Old}} \times 100$$

$$\frac{200,000 - 50,000}{50,000} = 3 \quad 3 \times 100 = 300$$

$$300 / 25 = 12\% \text{ per year}$$

of years 2008 - 1983 = 25

11. initial charge of \$30.00 + 10/mo. Big's
 $m(x) = 8x + 40$ or $y = 8x + 40$ Little's

Big's as an equation = $y = 10x + 30$
Little's = $y = 8x + 40$

A. Similarities - Both gyms have a monthly fee as well as an initial charge.
• The initial charge (y-int) for Big's gym is less than Little's gym, but the monthly charge (slope) of Little's is less.

B. Big Gym's graph would be steeper than Little's because the slope is bigger.

12. a. 40 triangles to complete 10 stages
b. $next = now + 4$

13. Domain - x-values $\rightarrow 0 \leq x \leq 21$

Range - y-values $0 \leq y \leq 600$

14. [C] Step 1: Look at the graph to see what the height is at 5 seconds and 10 seconds. Then, figure out how many meters it rose in that time.

5 sec = 200m
10 sec = 600m } difference of 400m

$$\frac{400}{5} = 80 \text{ m/s}$$

15.

a.

1	2	3	4	5
12	18	24	30	36

$\underbrace{\quad\quad}_6$
 $\underbrace{\quad\quad}_6$
 $\underbrace{\quad\quad}_6$
 $\underbrace{\quad\quad}_6$

b. Because the rate of change is constant, it's a linear function, so you would use $y = mx + b$ to write your formula.

$$y = 6x + b$$

c.

$$60 = 6x + b$$

$$\underline{- \quad b \quad - \quad b}$$

$$\frac{54}{6} = \frac{6x}{6}$$

$$9 = x$$

$$x = 9 \text{ weeks}$$