**Writing Linear Functions**

**Determine whether or not the relationship shows a linear function. If the data set represents a linear function, write the equation for the function.**

5.



 *SOLUTION*:

 Δx = 1; Δy = 3, 5, 7, 9

 nonlinear because Δy is not constant

 *ANSWER*:

nonlinear

6.



 *SOLUTION*:

Δx = 1; Δy = 2

 Linear because Δy is constant

 m = $\frac{Δy}{Δx}$ = $\frac{2}{1}$ = 2

 when x = 0, y = 5.5 – 2 = 3.5

 y = 2x + 3.5

*ANSWER*:

y = 2x + 3.5

7.



*SOLUTION*:

Δx = 1; Δy = 3

 Linear because Δy is constant

 m = $\frac{Δy}{Δx}$ = $\frac{3}{1}$ = 3

 when x = 0, y = 8 – 3 = 5

 y = 3x + 5

*ANSWER*:

y = 3x + 5

8.



 *SOLUTION*:

Δx = 1; Δy = -4

 Linear because Δy is constant

 m = $\frac{Δy}{Δx}$ = $\frac{-4}{1}$ = -4

 when x = 0, y = 24 + 4 = 28

 y = -4x + 28

 *ANSWER*:

 y = -4x + 28

9.



 *SOLUTION*:

Δx = 1; Δy = -0.6

 Linear because Δy is constant

 m = $\frac{Δy}{Δx}$ = $\frac{-0.6}{1}$ = -0.6

 when x = 0, y = 1.7

 y = -0.6x + 1.7

 *ANSWER*:

 y = -0.6x + 1.7

10.



 *SOLUTION*:

Δx = 2; Δy = 2, 4, 8, 16

 nonlinear because Δy is not constant

 *ANSWER*:

nonlinear

11.



 *SOLUTION*:

Δx = 2; Δy = 1, 2, 3, 4

 nonlinear because Δy is not constant

 *ANSWER*:

nonlinear

12.



*SOLUTION*:

Δx = 2; Δy = 1

 Linear because Δy is constant

 m = $\frac{Δy}{Δx}$ = $\frac{1}{2}$ = 0.5

 when x = 0, y = 8 – 1 = 7

 y = 0.5x + 7

*ANSWER*:

y = 0.5x + 7

13.



*SOLUTION*:

Δx = 2; Δy = 8

 Linear because Δy is constant

 m = $\frac{Δy}{Δx}$ = $\frac{8}{2}$ = 4

 when x = 0, y = 2 – 12 = -10

 y = 4x - 10

*ANSWER*:

y = 4x - 10

14.



*SOLUTION*:

Δx = 1; Δy = -2

 Linear because Δy is constant

 m = $\frac{Δy}{Δx}$ = $\frac{-2}{1}$ = -2

 when x = 0, y = 10 + 2 = 12

 y = -2x + 12

*ANSWER*:

y = -2x + 12

15.



*SOLUTION*:

Δx = 1; Δy = -1, -2, -3

 nonlinear because Δy is not constant

 *ANSWER*:

nonlinear

16.



*SOLUTION*:

Δx = 1; Δy = -60, -20, -10, -6

 nonlinear because Δy is not constant

 *ANSWER*:

nonlinear