Name: _____ **Date:** _____ **#26 Rate of change from a table**

- For each table below, show all work that helps you decide if it is linear function, linear correlation, or nonlinear.
- If it is linear, give the rate (explain it in context if there is one.)
- **(be careful with your decimals and negatives!)**

1.

Number of Balloons	Total Cost of Balloons (in Dollars)
2 +2	6 +6
4 +2	12 +6
6 +2	18 +6
8	24

$\frac{\Delta y}{\Delta x}$ $\frac{6}{2}$ $m=3$ Linear Function The cost increases $3 every balloon

2.

Number of Lawns	Total Earned (in Dollars)
3 +2	25.50 +17
5 +2	42.50 +17
7 +2	59.50 +17
9	76.50

$\frac{\Delta y}{\Delta x} = \frac{17}{2} = m$ Linear Function The person earns $17 every 2 lawns

3.

Number of Raffle Tickets	Total Cost of Raffle Tickets (in Dollars)
2 +2	1 +1
4 +4	2 +2
8 +2	4 +1
10	5

$\frac{\Delta y}{\Delta x}$ $\frac{1}{2}$ $\frac{2}{4}$ $\frac{1}{2}$ $m=1/2$ Linear Function The cost of tickets increases $1 every 2 tickets

4.

x	y
−2 +2	8 −8
0 +2	0 −8
2 +2	−8 −8
4	−16

$\frac{\Delta y}{\Delta x} = \frac{-8}{2}$ $m=-4$ Linear function

5.

Number of Photos Printed	Total Cost of Photos (in Dollars)
10 +10	2 +2
20 +10	4 +2
30 +10	6 +2
40	8

$\frac{\Delta y}{\Delta x} = \frac{2}{10}$ $m=\frac{1}{5}$ Linear Function The cost increases $1 every 5 photos

6.

x	y
3 +2	27 +18
5 +2	45 +18
7 +2	63 +18
9	81

$\frac{\Delta y}{\Delta x}$ $\frac{18}{2}$ $m=9$ Linear function

7.

x	y
2 +3	14 +21
5 +2	35 +14
7 +3	49 +21
10	70

$\frac{\Delta y}{\Delta x}$ $\frac{21}{3}$ $\frac{14}{2}$ $\frac{21}{3}$

↓ ↓ ↓

7 7 7

m=7

Linear Function

8.

x	y
−10 +8	50 −40
−2 +6	10 −30
4 +10	−20 −50
14	−70

$\frac{\Delta y}{\Delta x}$ $\frac{-40}{8}$ $\frac{-30}{6}$ $\frac{-50}{10}$

↓ ↓ ↓

−5 −5 −5

m=−5 Linear Function

9.

x	y
−1 +3	−24 +72
2 +2	48 +42
4 +4	90 +102
8	192

$\frac{\Delta y}{\Delta x}$ $\frac{72}{3}$ $\frac{42}{2}$ $\frac{102}{4}$

↓ ↓ ↓

24 21 $\frac{51}{2}$ ← all close

so

oops! Linear correlation

10.

x	y
−6 +3	12 −6
−3 +6	6 −12
3 +3	−6 −4
6	−10

$\frac{\Delta y}{\Delta x}$ $\frac{-6}{3}$ $\frac{-12}{6}$ $\frac{-4}{3}$

−2 −2 ↑

close to −2

Linear correlation

$$\begin{array}{r} 24 \\ +\ 48 \\ \hline 72 \end{array}$$

$$3\overline{)72}\quad 24,\ 6,\ 12$$

$$4\overline{)102}$$