Name: _____

Linear vs. Exponential Functions

1. Circle either linear or exponential, write the function formula (y=mx+b or y=ab^x), and circle if it is increasing/growth or decreasing/decay.

a.

x	0	1	2	3	4	5	6	7
y	2	5	8	11	14	17	20	23

Linear or exponential? $y =$ _____   Increasing/Growth or Decreasing/Decay

b.

x	0	1	2	3	4	5	6	7
y	3	6	12	24	48	96	192	384

Linear or exponential? $y =$ _____   Increasing/Growth or Decreasing/Decay

c.

x	0	1	2	3	4	5	6	7
y	10	5	2.5	1.25	.625	.3125	.15625	.078125

Linear or exponential? $y =$ _____   Increasing/Growth or Decreasing/Decay

d.

x	0	1	2	3	4	5	6	7
y	12	8	4	0	-4	-8	-12	-16

Linear or exponential? $y =$ _____   Increasing/Growth or Decreasing/Decay

e.

x	0	1	2	3	4	5	6	7
y	50	35	24.5	17.15	12.005	8.4035	5.88245	4.117715

Linear or exponential? $y =$ _____   Increasing/Growth or Decreasing/Decay

f.

x	0	1	2	3	4	5	6	7
y	40	35	30	25	20	15	10	5

Linear or exponential? $y =$ _____   Increasing/Growth or Decreasing/Decay

g.

x	0	1	2	3	4	5	6	7
y	.4	.6	.9	1.35	2.025	3.0375	4.55625	6.834375

Linear or exponential? $y =$ _____   Increasing/Growth or Decreasing/Decay

Name: _____

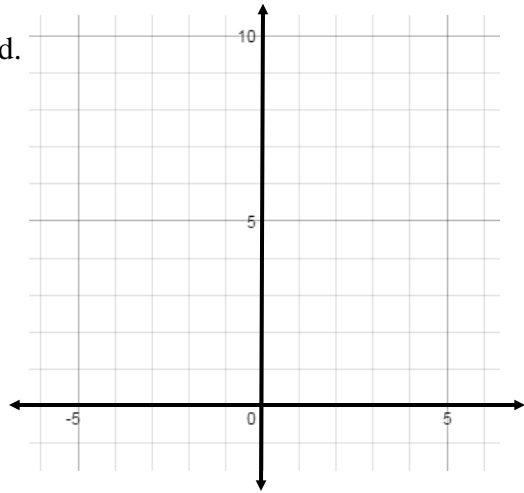**2.** Sketch a graph of the function $y = 3 \cdot 2^x$ on the axes provided. State if the graph models exponential growth or decay and find the average rate of change from 0 to 1.

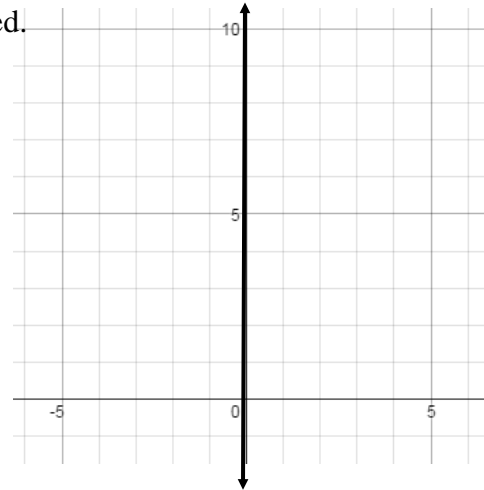<u>x | y</u>

Growth or Decay

Average Rate
of Change:

3. Sketch a graph of the function $y = 5 \cdot \left(\dfrac{3}{4}\right)^x$ on the axes provided. State if the graph models exponential growth or decay and find the average rate of change from -2 to 0.

<u>x | y</u>

Growth or Decay

Average Rate
of Change:

4. Sketch a graph of the function $y = \left(\dfrac{5}{2}\right)^x$ on the axes below. State if the graph models exponential growth or decay and find the average rate of change from 0 to 2.

<u>x | y</u>

Growth or Decay

Average Rate
Of Change: