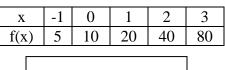
## Homework 3.1 Modeling Exponential Functions

Create the exponential function for each table.

1.



2.

X	-2	-1	0	1	2
f(x)	.75	3	12	24	48
		•			]

3.

	X	0	1	2	3	4
	f(x)	4	8	16	32	64
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4.

X	-2	-1	0	1	2
f(x)	4	12	36	108	324
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5.

X	0	1	2	3	4
f(x)	10	20	40	80	160

6.

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	X	0	1	2	3	4
	f(x)	5	10	20	40	80

7.

X	0	1	2	3	4
f(x)	1	4	16	64	256

8.

X	-4	-3	-2	-1	0
f(x)	5	15	45	135	407

9.

X	-1	0	1	2	3
f(x)	5	20	80	320	1280

10.

X	-1	0	1	2	3
f(x)	3	9	27	81	243

11.

X	-2	-1	0	1	2
f(x)	5	15	45	135	407

12.

12.					
X	-2	-1	0	1	2
f(x)	1	4	16	64	256
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13. Describe the visual difference between linear functions and exponential functions? \*Discuss graphical distinctions

14. Discuss the difference between common ratio versus common difference?

15. Consider f(x) = 2x + 1 and  $g(x) = 2^x$ . Discuss which function will eventually have the higher the y-values and explain why?

Determine which one is a linear function and which one is an exponential function. Explain why identified.

16.

 x
 0
 1
 2
 3
 4

 f(x)
 5
 10
 20
 40
 80

Circle one:

Exponential or Linear Explain why:

17.

 x
 0
 1
 2
 3
 4

 f(x)
 5
 10
 15
 20
 25

Circle one:

**Exponential or Linear** 

Explain why:

## 3.1 Answers

$$\boxed{1}f(x) = (10)(2)^{x} \ \boxed{2}f(x) = (12)(2)^{x} \ \boxed{3}f(x) = (4)(2)^{x} \ \boxed{4}f(x) = (36)(3)^{x} \ \boxed{5}f(x) = (10)(2)^{x} \\
\boxed{6}f(x) = (5)(2)^{x} \ \boxed{7}f(x) = (1)(4)^{x} \text{ or } f(x) = (4)^{x} \ \boxed{8}f(x) = (407)(3)^{x} \ \boxed{9}f(x) = (20)(4)^{x}$$

 $\boxed{10} f(x) = (9)(3)^x \boxed{11} f(x) = (45)(3)^x \boxed{12} f(x) = (16)(4)^x \boxed{13} \textit{ Explanation may vary } \boxed{14} \textit{ Explanation may vary } \boxed{15}$  Explanation may vary  $\boxed{16} \textit{ exponential; Explanation may vary } \boxed{17} \textit{ linear; Explanation may vary } \boxed{17}$