Homework 3.1 Modeling Exponential Functions

Create the exponential function for each table.

1.

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

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

4.

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

5.

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

6.

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.

x	-2	-1	0	1	2
f(x)	1	4	16	64	256

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

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

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