Geometric/Exponential

Sequences

1. Which sequence represents an exponential function?

(A) $\{1, 2, 3, 5, 8, \ldots\}$

(B) $\{1, 2, 4, 8, 16, \ldots\}$

(C) $\{1, 4, 7, 10, 13, \ldots\}$

(D) $\{1,4,9,16,25,\ldots\}$

2. What type of sequence is $\left\{\frac{1}{2},\frac{1}{3},\frac{2}{9},\frac{4}{27},\frac{8}{81},\ldots\right\}$?

(A) arithmetic
(B) cubic
(C) exponential
(D) logarithmic

3. Which pattern below represents a geometric sequence?

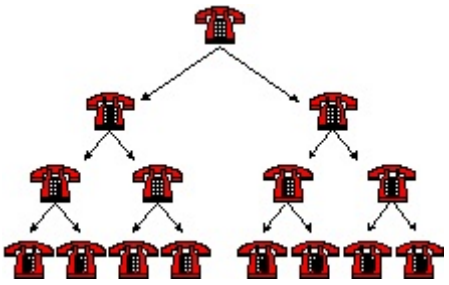
(A) $\{2+3,2+3+3,2+3+3+3,\ldots\}$

(B) $\{2\times4,2\times5,2\times6,\ldots\}$

(C) $\{2\times3,2\times3^2,2\times3^3,\ldots\}$

(D) $\{2+3,2+3^2,2+3^3,\ldots\}$

4. Which type of sequence is depicted by the phone tree shown?



(A) cubic

(B) geometric

(C) quadratic

(D) quartic

5. Which situation would be best modeled by an exponential relationship?

(A) depth of water in a cylindrical tank as it is filled with 30L of water each minute
(B) height of a rock thrown in the air from the time it is thrown until it hits the ground
(C) height of the sun above the horizon over a 24 hour period
(D) value of a lawnmower that depreciates by 15% annually

6. Which function represents a geometric sequence?

(A) $t_n = 2n + 3$

(B) $t_n = n^2 + 3$

(C) $t_n = 2^n$

(D) $t_n = \frac{n}{3}$

7. You put one penny in a glass jar one day, three pennies the next day, and so on, tripling the number of pennies put in the jar each day thereafter. What type of sequence will this pattern create?

(A) cubic
(B) geometric
(C) quadratic
(D) quartic

8. Which pattern represents a geometric sequence?

(A) $\left\{\frac{1}{3}+2, \frac{1}{3}+2+2, \frac{1}{3}+2+2+2, \ldots\right\}$

(B) $\left\{\frac{1}{3}\times 2, \frac{1}{3}\times 3, \frac{1}{3}\times 4, \ldots\right\}$

(C) $\left\{\frac{1}{3}\times 2, \frac{1}{3}\times 2\times 2, \frac{1}{3}\times 2\times 2\times 2, \ldots\right\}$

(D) $\left\{\frac{1}{3}+2^1, \frac{1}{3}+2^2, \frac{1}{3}+2^3, \ldots\right\}$

9. Which represents an exponential relationship?

(A)

x	1	1.2	1.4	1.6	1.8
y	3	6	8	12	15

(B)

x	1	1.8	2.6	3.4	4.2
y	5.5	7	9.5	13	17.5

(C)

x	1	1.5	2	2.5	3
y	5.5	9	18.5	37	67.5

(D)

x	1	1.1	1.2	1.3	1.4
y	6	36	216	1296	7776

10. Which represents a geometric sequence?

(A) $\left\{\frac{1}{2}\times\sqrt{3},\ \frac{1}{2}\times\sqrt{3}\times\sqrt{3},\ \frac{1}{2}\times\sqrt{3}\times\sqrt{3}\times\sqrt{3},\ldots\right\}$

(B) $\left\{\frac{1}{2}-\sqrt{3},\ \frac{1}{2}-\sqrt{3}^{2},\ \frac{1}{2}-\sqrt{3}^{3},\ldots\right\}$

(C) $\left\{\frac{1}{2}+\sqrt{3},\ \frac{1}{2}+\sqrt{3}^{2},\ \frac{1}{2}+\sqrt{3}^{3},\ldots\right\}$

(D) $\left\{\frac{1}{2}\times 2,\ \frac{1}{2}\times 3,\ \frac{1}{2}\times 4,\ldots\right\}$

11. Which represents an exponential relationship?

(A)

x	1	2	3	4	5
y	6	3	$\frac{3}{2}$	$\frac{3}{4}$	$\frac{3}{8}$

(B)

x	1	2	3	4	5
y	6	3	0	−3	−6

(C)

x	1	2	3	4	5
y	6	8	11	15	20

(D)

x	1	2	3	4	5
y	6	8	10	12	14

12. Which represents a geometric sequence?

(A) $\left\{\frac{1}{2}+1\cdot 2,\ \frac{1}{2}+2\cdot 2,\ \frac{1}{2}+3\cdot 2,\ \frac{1}{2}+4\cdot 2,\ldots\right\}$

(B) $\left\{\frac{1}{2}\times 1\cdot 2,\ \frac{1}{2}\times 2\cdot 2,\ \frac{1}{2}\times 3\cdot 2,\ \frac{1}{2}\times 4\cdot 2,\ldots\right\}$

(C) $\left\{\frac{1}{2}+2^{1},\ \frac{1}{2}+2^{2},\ \frac{1}{2}+2^{3},\ \frac{1}{2}+2^{4},\ldots\right\}$

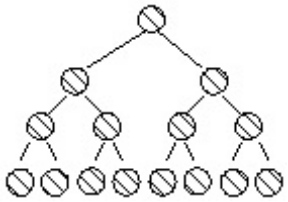
(D) $\left\{\frac{1}{2}\times 2^{1},\ \frac{1}{2}\times 2^{2},\ \frac{1}{2}\times 2^{3},\ \frac{1}{2}\times 2^{4},\ldots\right\}$

13. Which pattern represents an exponential sequence?

(A)

Figure 1 Figure 2 Figure 3 Figure 4

(B)



(C)

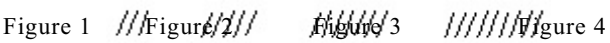


Figure 1 Figure 2 Figure 3 Figure 4

(D)

Figure 1 Figure 2 Figure 3

Figure 4

14. Which represents an exponential relationship?

(A)

x	1	2	3	4
y	1	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{4}$

(B)

x	1	2	3	4
y	$\frac{1}{3}$	$\frac{1}{9}$	$\frac{1}{27}$	$\frac{1}{81}$

(C)

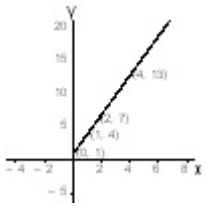
x	1	2	3	4
y	3	5	7	9

(D)

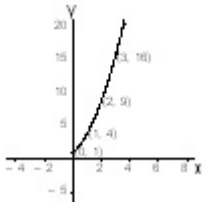
x	1	2	3	4
y	2	−4	4	−2

15. Which best represents an exponential relationship?

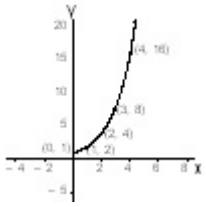
(A)



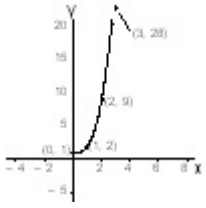
(B)



(C)



(D)



Answers Exponential Sequences

1. **C**
2. **C**
3. **C**
4. **A**
5. **D**
6. **C**
7. **A**
8. **C**
9. **D**
10. **A**
11. **A**
12. **D**
13. **B**
14. **B**
15. **C**