A. Multiple Choice. Select the best answer.

1. Determine the common ratio of the geometric sequence $\frac{1}{12}$, $-\frac{1}{3}$, $\frac{4}{3}$, ...

A. 4

B. -4

C. $-\frac{1}{4}$

2. Determine the number of terms in the series $\sum_{k=0}^{\infty} (2k - 53)$.

A. 45

B. 44

C. 47

D. 46

3. Each row in a display of stacked cans has one can less than the row below it. How many cans are required for a display which has 60 cans in the bottom row and 3 cans in the top row?

A. 1890

B. 1830

C. 1827

D. 1764

4. Determine all values of x such that the following geometric series has a finite sum.

$$1 + \frac{1}{3}x + \frac{1}{9}x^2 + \frac{1}{27}x^3 + \dots$$

A. $0 < x < \frac{1}{3}$

B. -3 < x < 3, $x \ne 0$ C. $-\frac{1}{3} < x < \frac{1}{3}$, $x \ne 0$ D. -1 < x < 1, $x \ne 0$

5. What is the restriction on the common ratio $r(r \neq 0)$ so that an infinite geometric series has a finite sum?

A. -1 < r < 1

B. 0 < r < 1

C. r > 1

D. r < 1

6. Which one of the following best illustrates a geometric sequence?

A. m, m^2, m^3, m^4

B. m, m^2, m^4, m^8

C. m, 2m, 3m, 4m

D. m, m + 2, m + 4, m + 8

7. Determine the sum of the infinite geometric sequence $\frac{1}{2}$, -1, 2, ...

A. The sum cannot be determined.

B. $-\frac{1}{2}$

represents

A. an arithmetic series with a = 3, d = 5.

B. an arithmetic series with a = 5, d = 3.

C. a geometric series with a = 3, r = 5.

D. a geometric series with a = 5, r = 3.

	netric series has a linite su	im, which of the follows	ng could be the common
ratio <i>r</i> ? A. 1.5	B. 1.0	C. 0.6	D1.2
10 Determine the 70	Oth term of the geometric s	eguence 2, -4, 8, -16,	
A. 2 ⁶⁹		C2 ⁷⁰	D. (-2) ⁷⁰
11 In a geometric sea		:	nmon ratio r correct to the
nearest tenth.	quoneo, $u = 125$ and $t_4 = 0$, determine are con	
A. 18.9	B. 2.7	C. 3.8	D. 9.1
10. Determine the year	ly ag af a(x , ()) gual that the	ha fallatvina infinita gad	metric ceries has a finite sun
12. Determine the val		-	ometric series has a finite sun
	$1 + \frac{1}{4}x + \frac{1}{16}x^2$	$+\frac{1}{64}x^3+$	
, 1 , 1	B. $x < \frac{1}{4}$	C *> 1	D4 < x <4
$A\frac{1}{4} < x < \frac{1}{4}$	B. $x < \frac{\pi}{4}$	C. x > 4	D4< 1<4
13. Use sigma notation	on to write the geometric	series 2 – 6 +18 – + 1	458.
A. $\sum_{k=1}^{n} 2(3)^k$	B. $\sum_{k=1}^{7} 2(-3)^{k-1}$	C. $\sum_{k=1}^{\infty} 2(3)^{k-2}$	D. $\sum_{k=1}^{\infty} 2(-3)^{k}$
W-1		N-1	
14. A ball is dropped	from a height of 2 m. On	each bounce, the ball ris	ses to 60% of the height from
14. A ball is dropped which it fell. Cald A. 10 m	from a height of 2 m. On culate the total vertical dist B. 5 m	each bounce, the ball ris ance the ball travels before C. 7 m	ses to 60% of the height from ore coming to rest. D. 8 m
which it fell. Cald A. 10 m	culate the total vertical dist B. 5 m	ance the ball travels before C. 7 m	ore coming to rest. D. 8 m
which it fell. Cald A. 10 m	culate the total vertical dist B. 5 m	ance the ball travels before C. 7 m	ore coming to rest. D. 8 m
which it fell. Calc A. 10 m 15. If $\sum_{k=1}^{\infty} (\sin x)^{k-1} = \frac{1}{2}$	Evaluate the total vertical dist $B.5m$ $= 5$, determine x to the near	ance the ball travels before $C.7 \text{ m}$ arest degree. $(0^{\circ} \le x \le 9)$	ore coming to rest. D. 8 m
which it fell. Calc A. 10 m 15. If $\sum_{k=1}^{\infty} (\sin x)^{k-1} = $ A. 66°	B. 5 m B. 5 m Solution of the near the second sec	ance the ball travels before $C.7 \text{ m}$ arest degree. $(0^{\circ} \le x \le 9)$ $C.46^{\circ}$	D. 8 m D. 5
which it fell. Calc A. 10 m 15. If $\sum_{k=1}^{\infty} (\sin x)^{k-1} = $ A. 66°	B. 5 m B. 5 m Solution of the near the second sec	ance the ball travels before $C.7 \text{ m}$ arest degree. $(0^{\circ} \le x \le 9)$ $C.46^{\circ}$	D. 8 m
which it fell. Calcondariant A. 10 m 15. If $\sum_{k=1}^{\infty} (\sin x)^{k-1} = A$. 66° 16. If the sum of an in	B. 36° and the total vertical dist B. 5 m b. 5 m c. 5 determine x to the near B. 36°	ance the ball travels before $C.7 \text{ m}$ arest degree. $(0^{\circ} \le x \le 9)$ $C.46^{\circ}$ 9 and the first term is 6,	D. 8 m D. 56 determine the common ratio
which it fell. Calc A. 10 m 15. If $\sum_{k=1}^{\infty} (\sin x)^{k-1} = \frac{1}{4}$ A. 66° 16. If the sum of an in A. $\frac{3}{2}$	Evaluate the total vertical dist $B.5m$ $E=5$, determine x to the near $E=5$. An $E=5$ is $E=5$. B. $E=$	ance the ball travels before $C.7 \text{ m}$ arest degree. $(0^{\circ} \le x \le 9)$ $C.46^{\circ}$ 9 and the first term is 6, $C.1$	D. 8 m D. 5 decoming to rest. D. 1
which it fell. Calc A. 10 m 15. If $\sum_{k=1}^{\infty} (\sin x)^{k-1} = A$. 66° 16. If the sum of an in A. 3	Evaluate the total vertical dist $B.5m$ $E=5$, determine x to the near $E=5$. An $E=5$ is $E=5$. B. $E=$	ance the ball travels before $C.7 \text{ m}$ arest degree. $(0^{\circ} \le x \le 9)$ $C.46^{\circ}$ 9 and the first term is 6, $C.1$	D. 8 m D. $5 \frac{4}{3}$ determine the common ratio D. $-\frac{1}{3}$
which it fell. Calc A. 10 m 15. If $\sum_{k=1}^{\infty} (\sin x)^{k-1} = \frac{16}{4}$. If the sum of an in A. $\frac{3}{2}$	Evaluate the total vertical dist $B.5m$ $E=5$, determine x to the near $E=5$. An $E=5$ is $E=5$. B. $E=$	ance the ball travels before $C.7 \text{ m}$ arest degree. $(0^{\circ} \le x \le 9)$ $C.46^{\circ}$ 9 and the first term is 6, $C.1$	D. 56 determine the common ratio D14.4
which it fell. Calc A. 10 m 15. If $\sum_{k=1}^{\infty} (\sin x)^{k-1} = \frac{1}{4}$ A. 66° 16. If the sum of an in A. $\frac{3}{2}$ 17. Solve for x : $\sum_{j=3}^{5} (\sin x)^{k-1} = \frac{1}{4}$	Evaluate the total vertical dist B. 5 m = 5, determine x to the near B. 36° Infinite geometric series is B. $\frac{2}{3}$ (j-6)x = 72 B6	ance the ball travels before C . 7 m arest degree. $(0^{\circ} \le x \le 9)$ C . 46° 9 and the first term is 6, C . $\frac{1}{3}$	D. 8 m D. 56 determine the common ratio. D. $-\frac{1}{3}$
which it fell. Calc A. 10 m 15. If $\sum_{k=1}^{\infty} (\sin x)^{k-1} = \frac{1}{4}$ A. 66° 16. If the sum of an in A. $\frac{3}{2}$ 17. Solve for x : $\sum_{j=3}^{5} (A - 72)^{j-2}$	Evaluate the total vertical dist B. 5 m = 5, determine x to the near B. 36° Infinite geometric series is B. $\frac{2}{3}$ (j-6)x = 72 B6	ance the ball travels before C . 7 m arest degree. $(0^{\circ} \le x \le 9)$ C . 46° 9 and the first term is 6, C . $\frac{1}{3}$	D. 56 determine the common ratio D14.4

- 19. Evaluate: $\sum_{k=2}^{4} \log_2 k$ (Accurate to 2 decimal places.)
 - A. 4.58
- B. 3.17
- C. 1.38
- D. 1.08
- 20. Given that 2^x , 8^y , k is a geometric sequence, determine k.
 - A. 2^{3y-x}
- B. 2^{6y-x}
- C. 2^{2y-2x}
- D. 2^{10y-5x}
- 21. Determine the sum of the first 12 terms of the series $\log_b 1 + \log_b 10 + \log_b 100 + \dots$
- C. 72

D. 66

- 22. Given the geometric series 7 + 14 + 28 + 56 + ... + 7168
 - a) Find the number of terms.
 - b) Write the series using sigma (summation) notation.
- 23. A worker is paid \$0.03 on the first day, \$0.06 on the second day, \$0.12 on the third day, \$0.24 on the fourth day, and so on. How much money in total would be earned after working for 24 days?
- 24. If a person received a 10% salary increase at the end of each year and earned a total of \$91,576.50 during the first five years of work, determine the starting salary.

- B
- 11 C
- $\frac{21}{27}$ $\frac{8}{27}$ $\frac{11}{27}$ $\frac{27}{27}$ $\frac{11}{27}$ $\frac{27}{27}$ $\frac{27}$

- D
- 12 D

- ゝ C
- 13. B D 14

- B L A
- 15
- 24. 15000

- A
- 16
- 17
- C 17
- A
- C P
- 19 A
- 10
- 20 B

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