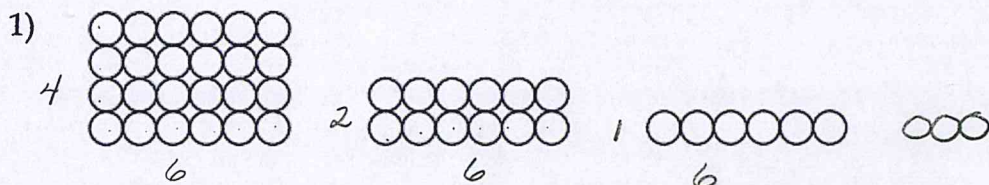


Draw the next figure in each pattern. Describe the pattern. Then, write the number sequence for the first 4 figures in the pattern.

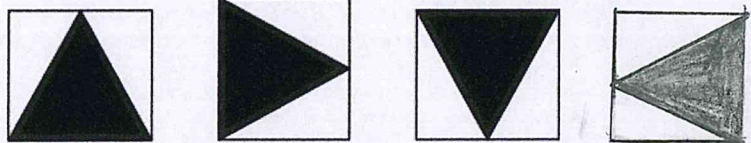


Use your words!

Count the circles

Pattern: Each figure has $\frac{1}{2}$ as many circles

Sequence: 24, 12, 6, 3



Pattern: Each figure rotates 90° clockwise.

Sequence: $0^\circ, 90^\circ, 180^\circ, 270^\circ$

Use the same format as the given sequence.

Find the common difference for each arithmetic sequence. Then, find the next 3 terms.

3) 6, 4, 2, 0, -2, -4, -6

$d = \underline{-2}$
 $4 - 6 = -2$
 $2 - 4 = -2$
 2nd term - 1st term

4) $\frac{1}{3}, \frac{2}{3}, 1, \frac{4}{3}, \frac{5}{3}, 2, \frac{7}{3}$

$d = \underline{\frac{1}{3}}$
 $\frac{2}{3} - \frac{1}{3} = \frac{1}{3}$
 $1 - \frac{2}{3} = \frac{1}{3}$

Find the common ratio for each geometric sequence. Then, find the next 3 terms.

5) 3000, 300, 30, 3, 0.3, 0.03, 0.003

$r = \underline{\frac{1}{10}}$
 $\frac{300}{3000} = \frac{1}{10}$
 $\frac{30}{300} = \frac{1}{10}$
 2nd term / 1st term

6) 7, -21, 63, -189, 567, -1701, 5103

$r = \underline{-3}$
 $\frac{-21}{7} = -3$
 $-\frac{63}{21} = -3$

— show your work! Don't just guess.

Determine whether each sequence is arithmetic (A), geometric (G), or neither (N). Then, write the next 3 terms. — make sure you write the next 3 terms!

7) $-101, -112, -123, -134, -145, -156, -167$

$$-112 - (-101) = -112 + 101 = -11$$

$$-123 - (-112) = -123 + 112 = -11$$

Arithmetic

8) $2, -2, 2, -2, 2, -2, 2$

$$-2 - 2 = -4$$

$$2 - (-2) = 2 + 2 = 4$$

not Arithmetic

$$-\frac{2}{2} = -1 \quad \frac{2}{-2} = -1$$

Geometric

9) $1, -4, 9, -16, 25, -36, 49$

$$-4 - 1 = -5$$

$$9 - (-4) = 9 + 4 = 13$$

not Arithmetic

$$\frac{-4}{1} = -4 \quad \frac{9}{-4}$$

not Geometric

Neither

10) $1, 12, 123, 1234, 12345, 123456, 1234567$

$$12 - 1 = 11$$

$$123 - 12 = 111$$

not Arithmetic

$$\frac{12}{1} = 12 \quad \frac{123}{12} = \frac{41}{4}$$

not Geometric

Neither