

Math Sheet

Name _____ Score _____ Teacher _____ Date _____

Comparing Arithmetic and Geometric Sequences

Classify each sequence as arithmetic, geometric, or neither. Give a useful difference, ratio, or reason.

1. $a_n = 5 + 1n$

Class: _____ d or r: _____

2. $a_n = 1 \cdot (-3)^{n-1}$

Class: _____ d or r: _____

3. 1, 7, 14, 22

Class: _____ d or r: _____

4. 2, 5, 9, 14

Class: _____ d or r: _____

5. $a_n = \frac{7 + 3n}{4^n}$

Class: _____ d or r: _____

6. 8, 11, 14, 17

Class: _____ d or r: _____

7. 5, 2, -1, -4

Class: _____ d or r: _____

8. -3, -6, -12, -24

Class: _____ d or r: _____

9. $a_1 = 2$
 $a_n = (12 - a_{n-1}) / 4, n \geq 2$

Class: _____ d or r: _____

10. $a_n = 5 \cdot (-2)^{n-1}$

Class: _____ d or r: _____

11. 1, -2, 4, -8

Class: _____ d or r: _____

12. $a_n = -2 + 6n$

Class: _____ d or r: _____

Comparing Arithmetic and Geometric Sequences

Answer Key

Classify each sequence as arithmetic, geometric, or neither. Give a useful difference, ratio, or reason.

1. $a_n = 5 + 1n$

Arithmetic; $d = 1$

2. $a_n = 1 \cdot (-3)^{n-1}$

Geometric; $r = -3$

3. 1, 7, 14, 22

Neither; differences and ratios vary

4. 2, 5, 9, 14

Neither; differences and ratios vary

5. $a_n = \frac{7 + 3n}{4^n}$

Neither; differences and ratios vary

6. 8, 11, 14, 17

Arithmetic; $d = 3$

7. 5, 2, -1, -4

Arithmetic; $d = -3$

8. -3, -6, -12, -24

Geometric; $r = 2$

9. $a_1 = 2$
 $a_n = (12 - a_{n-1}) / 4, \quad n \geq 2$

Neither; differences and ratios vary

10. $a_n = 5 \cdot (-2)^{n-1}$

Geometric; $r = -2$

11. 1, -2, 4, -8

Geometric; $r = -2$

12. $a_n = -2 + 6n$

Arithmetic; $d = 6$