

Number Sequences

Math 11

Name SOLUTIONS

State: Arithmetic or Geometric or Neither. State t_1 and d or t_1 and r where appropriate.

t_1 d/r

1. 12, 9, 6, 3, 0, . . .
 D_1 \checkmark \checkmark \checkmark \checkmark
 -3 -3 -3 -3

Arithmetic 12 -3

2. 12, 6, 3, 1.5, 0.75, . . .
 $\times \frac{1}{2}$ $\times \frac{1}{2}$ $\times \frac{1}{2}$ $\times \frac{1}{2}$

Geometric 12 1/2

3. -3, -1, 1, 3, 5, . . .
 D_1 \checkmark \checkmark \checkmark \checkmark
 2 2 2 2

Arithmetic -3 2

4. 1, 4, 9, 16, 25, . . .
 D_1 \checkmark \checkmark \checkmark \checkmark
 3 5 7 9

Neither 1 —
 (QUADRATIC)

5. $x^2, x^5, x^8, x^{11}, \dots$
 D_2 \checkmark \checkmark \checkmark
 $\times x^3$ $\times x^3$ $\times x^3$

Geometric x^2 x^3

6. 360, 120, 40, $\frac{40}{3}, \dots$
 $\times \frac{1}{3}$ $\times \frac{1}{3}$ $\times \frac{1}{3}$

Geometric 360 1/3

7. $\frac{1}{4}, \frac{1}{2}, \frac{3}{4}, 1, \frac{5}{4}, \dots$
 Common Den. $\frac{1}{4}, \frac{2}{4}, \frac{3}{4}, \frac{4}{4}, \frac{5}{4}$
 $D_1: \frac{1}{4}, \frac{1}{4}, \frac{1}{4}, \frac{1}{4}$

Arithmetic $\frac{1}{4}$ $\frac{1}{4}$

8. $\frac{1}{4}, \frac{1}{2}, 1, 2, 4, \dots$
 $\times 2 \times 2 \times 2 \times 2$

Geometric $\frac{1}{4}$ 2

9. $1, 1.5, 2, 2.5, 3, 3.5, \dots$
 $D_1: 0.5, 0.5, 0.5, 0.5, 0.5$

Arithmetic 1 0.5

10. $1, 1.5, 2.25, 3.375, 5.0625, \dots$
 $\times 1.5 \times 1.5 \times 1.5 \times 1.5$

Geometric 1 1.5

11. $2, 3, 5, 8, 12, 17, \dots$
 $D_1: 1, 2, 3, 4, 5$
 $D_2: 1, 1, 1, 1$

Neither 2 —
 (QUADRATIC)

12. $\frac{11}{4}, \frac{9}{4}, \frac{7}{4}, \frac{5}{4}, \frac{3}{4}, \dots$
 $D_1: -\frac{2}{4}, -\frac{2}{4}, -\frac{2}{4}, -\frac{2}{4}$

Arithmetic $\frac{11}{4}$ $-\frac{2}{4}$ or $-\frac{1}{2}$