Sequences Homework

General Sequences

Write the first six terms of the sequence.

1. $a_n = \dfrac{n+4}{n}$ **2.** $a_n = \dfrac{n^2}{n+1}$ **3.** $a_n = (n+1)^3$

Write the next term in the sequence. Then write a rule for the _n_th term.

4. $\frac{1}{2}, 1, \frac{3}{2}, 2, \ldots$ **5.** $1, 4, 7, 10, \ldots$ **6.** $4, 3, 2, 1, \ldots$

7. $5, 7, 9, 11, \ldots$ **8.** $3, 7, 11, 15, \ldots$ **9.** $4, 9, 16, 25, \ldots$

Arithmetic Sequences

Write a rule for the _n_th term of the arithmetic sequence. Then find a_{30}.

1. $1, -3, -7, -11, -15, \ldots$ **2.** $7, 2, -3, -8, -13, \ldots$ **3.** $2.5, 2.2, 1.9, 1.6, \ldots$

4. $5, 8.4, 11.8, 15.2, \ldots$ **5.** $\frac{9}{4}, \frac{5}{2}, \frac{11}{4}, 3, \frac{13}{4}, \ldots$ **6.** $-\frac{5}{3}, -1, -\frac{1}{3}, \frac{1}{3}, 1$

Write a rule for the _n_th term of the arithmetic sequence.

7. $d = 0.2, a_1 = 16$ **8.** $d = \frac{2}{3}, a_1 = 12$ **9.** $d = -4, a_{10} = 2$

10. $a_6 = 27.2, a_{13} = 44$ **11.** $a_{15} = -19, a_{24} = -16$ **12.** $a_8 = -24.8, a_{18} = -50.8$

Geometric Sequences

Find the common ratio of the geometric sequence.

1. $1, -3, 9, -27, \ldots$ **2.** $-2, \frac{1}{2}, -\frac{1}{8}, \frac{1}{32}, \ldots$ **3.** $7, \frac{21}{4}, \frac{63}{16}, \frac{189}{64}, \ldots$

Write a rule for the _n_th term of the geometric sequence. Then find a_8.

4. $-3, \frac{3}{4}, -\frac{3}{16}, \frac{3}{64}, \ldots$ **5.** $2, -0.8, 0.32, -0.128, \ldots$ **6.** $7, 28, 112, 448, \ldots$

Write a rule for the _n_th term of the geometric sequence.

7. $a_1 = 5, r = 1.1$ **8.** $a_3 = -64, a_7 = -\frac{1}{4}$ **9.** $a_8 = \frac{1}{9}, a_{15} = 243$