

Markerboard or Stations Activity
Geometric & Arithmetic Series
Solutions:

Write each series in summation (sigma) notation.

1.

$$\sum_{k=1}^{18} 2k$$

3.

$$\sum_{k=1}^8 (-3)^{k-1}$$

2.

$$\sum_{k=1}^{12} 2^{k-1}$$

4.

$$\sum_{k=1}^{24} (-4k + 1)$$

Evaluate the series (using your calculator).

1. 14762
2. 950
3. 140
4. $-\frac{128}{3}$ or -42.667

Evaluate the series (without your calculator).

1. $\frac{93}{16}$
2. -765
3. $\frac{15}{2}$
4. -22

Determine whether the series converges or diverges. If the series converges, find the sum.

1. Diverges (infinite arithmetic)
2. Diverges
3. The series converges to $\frac{12}{5}$.
4. The series converges to 12.

Real life applications

1. \$12
2. The 7th bounce reaches 3.125 ft.
The ball traveled 1193.75 ft before the 8th bounce.
3. \$82
4. $100 \left(1 + \frac{.08}{12}\right)^0 + 100 \left(1 + \frac{.08}{12}\right)^1 + 100 \left(1 + \frac{.08}{12}\right)^2 + \dots + 100 \left(1 + \frac{.08}{12}\right)^{119}$
 $\sum_{k=1}^{120} 100 \left(1 + \frac{.08}{12}\right)^{k-1} = \18294.60