# EXAMPLE 7 Constructing Sequences

The second and fifth terms of a sequence are 3 and 24, respectively. Find explicit and recursive formulas for the sequence if it is **(a)** arithmetic

$-4, 3, 10, 17, 24$

$a_n = a_1 + (n-1)d$

$24 = 3 + (4-1)d$

$24 = 3 + 3d$

$21 = 3d$

$d = 7$

$a_n = -4 + (n-1)7$

$a_n = -4 + 7n - 7$

$a_n = 7n - 11$

$a_n = a_{n-1} + 7$

# EXAMPLE 7 Constructing Sequences

The second and fifth terms of a sequence are 3 and 24, respectively. Find explicit and recursive formulas for the sequence if it is **b)** geometric.

$\frac{3}{2}, 3, 6, 12, 24, 48$

$a_n = a_1 \cdot r^{n-1}$

$24 = 3 \cdot (r)^{4-1}$

$\frac{24}{3} = \frac{3 \cdot (r)^3}{3}$

$8 = r^3$

$\sqrt[3]{8} = \sqrt[3]{r^3}$

$r = 2$

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

$a_n = a_{n-1}(2)$