Solve the following recurrence relation,

1) $x(n) = x(n-1) + 5$ for $n \geq 1$ with $x(1) = 0$

1) Write down the first two terms to identify the pattern

$x(1) = 0$

$x(2) = x(1) + 5 = 5$

$x(3) = x(2) + 5 = 10$

$x(4) = x(3) + 5 = 15$

2) Identify the pattern for general terms

First term $x(1) = 0$

the common difference $d = 5$

general formula for nth term of APs

$x(n) = x(1) + (n-1)d$

substituting given values

$x(n) = x(1) + (n-1)d$

$x(n) = 0 + (n-1) \cdot 5 = 5(n-1)$

$x(n) = 5(n-1)$

3) $x(n) = 3 \times 6 - 1)$ for $n \geq 1$ with $x(1) = 4$

1) write down first two terms to identify pattern

$x(1) = 4$

$x(2) = 3 \times (1) = 3 \cdot 4 = 12$

$x(3) = 3 \times (2) = 36$

$x(4) = 3 \times (3) = 108$

2) Identify general term

the first term $x(1) = 4$

the common ratio $r = 3$