

Fill in the Blanks

Sums of Natural Numbers

Summation	Expand	Use Standard Formulae	Simplify
$\sum_{r=4}^n (3r + 1)$	$\left(3 \sum_{r=1}^n r + \sum_{r=1}^n 1\right) - \left(3 \sum_{r=1}^3 r + \sum_{r=1}^3 1\right)$	$\left(3 \times \frac{n(n+1)}{2} + n\right) - \left(3 \times \frac{3 \times 4}{2} + 3\right)$	
$\sum_{r=6}^n (4r - 1)$	$\left(4 \sum_{r=1}^n r - \sum_{r=1}^n 1\right) - \left(4 \sum_{r=1}^5 r - \sum_{r=1}^5 1\right)$		
$\sum_{r=5}^n (2r + 5)$			
$\sum_{r=3}^{n+1} (5r - 2)$			
$\sum_{r=10}^{2n} (7 + 3r)$			
$\sum_{r=n}^{3n} (6r - 1)$			
$\sum_{r=4}^{n+3} (3 - 2r)$			
$\sum_{r=n-1}^{2n+1} (4r + 3)$			