**3A Summations**

$$\sum\_{r=1}^{n}1=n$$

$$\sum\_{r=1}^{n}r=\frac{1}{2}n(n+1)$$

1. Calculate the sum of the series indicated below:

$$\sum\_{r=1}^{50}r$$

$$\sum\_{r=21}^{60}r$$

Splitting up Series:

$$\sum\_{r=1}^{n}(ar+b)= a\sum\_{r=1}^{n}r+  b\sum\_{r=1}^{n}1$$

1. Show that:

$$\sum\_{r=1}^{n}(3r+2)$$

Can be written as:

$$3\sum\_{r=1}^{n}r+  2\sum\_{r=1}^{n}1$$

1. Evaluate

$$\sum\_{r=1}^{25}(3r+1)$$

1. Show that

$$\sum\_{r=1}^{n}(7r-4)=\frac{n}{2}\left(7n-1\right)$$

1. Hence, calculate the value of:

$$\sum\_{r=20}^{50}(7r-4)$$