

$$\sum_{n=1}^n C = C(n) \quad C = \text{constant}$$

$$\sum_{n=1}^n n^1 = \frac{n(n+1)}{2}$$


$$\sum_{n=1}^n n^2 = \frac{n(n+1)(2n+1)}{6}$$

$$\sum_{n=1}^n n^3 = \frac{n^2(n+1)^2}{4}$$

$$\sum_{n=1}^n n^4 = \frac{n(n+1)(2n+1)(3n^2+3n-1)}{30}$$

$$\sum_{n=1}^n n^5 = \frac{n^2(n+1)^2(2n^2+2n-1)}{12}$$

All formulas, you just plug the

top number in for n.


Also on P. 644
that I provided

$$\textcircled{45} \quad \sum_{n=1}^{15} n = \frac{15(15+1)}{2} = \frac{15(16)}{2} = 15(8) = \boxed{120}$$

$$\textcircled{53} \quad \sum_{i=1}^6 (6i - 8i^3)$$

Separate

$$\sum_{i=1}^6 6i + \sum_{i=1}^6 -8i^3$$

Constants
moved out
front

$$6 \sum_{i=1}^6 i - 8 \sum_{i=1}^6 i^3$$

$$6 \left(\frac{6(6+1)}{2} \right) - 8 \left(\frac{6^2(6+1)^2}{4} \right)$$

$$3(6)(7) - 2(36)(49)$$

$$\boxed{-3402}$$

$$\begin{array}{l} i \text{ instead of } n \\ \boxed{\sum i = \frac{i(i+1)}{2}} \\ \boxed{\sum i^3 = \frac{i^2(i+1)^2}{4}} \end{array}$$

* Friday is a review assignment (Quiz)
I will not post the answers until
next week after it is due. Then
we will start Ch 10.