

sigma $\Rightarrow \sum$

ex.1 $\sqrt{1} + \sqrt{2} + \sqrt{3} + \dots + \sqrt{10} = \sum_{i=1}^{10} \sqrt{i}$

$$3^3 + 4^3 + 5^3 + \dots + 45^3 = \sum_{i=3}^{45} i^3$$

ex.2 $\sum_{i=1}^{200} (2i-1)$ OR $\sum_{i=0}^{199} (2i+1)$

$$1 + 3 + 5 + \dots + 399$$

ex.3 $\sum_{i=1}^8 (2i+1) = 3 + 5 + 7 + 9 + 11 + 13 + 15 + 17 = 80$

$$\begin{aligned} \sum_{i=2}^6 \sin(2\pi i) &= \sin 4\pi + \sin 6\pi + \sin 8\pi + \sin 10\pi + \sin 12\pi \\ &= 0 + 0 + 0 + 0 + 0 \\ &= 0 \end{aligned}$$

$$\sum_{i=4}^{10} 5 = 5 + 5 + 5 + 5 + 5 + 5 + 5 = 35$$

$$\rightarrow \sum_{i=4}^{10} 5 = \sum_{i=1}^{10} 5 - \sum_{i=1}^3 5$$

Thm 2.1 (i) $\sum_{i=1}^n c = cn$

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

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

$$\left| \begin{aligned} &\int (af(x) + bf(x)) dx \\ &= a \int f(x) dx + b \int f(x) dx \end{aligned} \right.$$

Thm 2.2 $\sum_{i=1}^n (ca_i + db_i) = c \sum_{i=1}^n a_i + d \sum_{i=1}^n b_i$

ex.4 $\sum_{i=1}^8 (2i+1) = 2 \sum_{i=1}^8 i + \sum_{i=1}^8 1$

$$= 2 \left(\frac{8(9)}{2} \right) + 1(8)$$

$$= 72 + 8$$

$$= 80$$

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

$$\sum_{i=1}^n c = cn$$

$$\sum_{i=1}^{800} (2i+1) = 2 \sum_{i=1}^{800} i + \sum_{i=1}^{800} 1$$

$$= 2 \left(\frac{800(801)}{2} \right) + 1(800)$$

$$= 640,800 + 800$$

$$= 641,600$$

ex.5 $\sum_{i=1}^{20} i^2 = \frac{20(21)(41)}{6} = 2870$

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

$$\sum_{i=1}^{20} \left(\frac{i}{20} \right)^2 = \sum_{i=1}^{20} \frac{i^2}{400} = \frac{1}{400} \sum_{i=1}^{20} i^2$$

$$= \frac{1}{400} \left(\frac{20(21)(41)}{6} \right) = \frac{1}{400} (2870)$$

$$= 7.175$$

p. 360-361		
1-31 odd, 35, 37		

1-17 odd, 35, 37