Sum of Arithmetic Sequence.

$$S_n = \sum_{k=1}^{n} a_k = \frac{n}{2}(1st + last)$$

$$\frac{n(a_1 + a_n)}{2}$$

$$\underset{\quad}{\overset{+d}{\frown}} \quad \underset{\quad}{\overset{+d}{\frown}} \quad \underset{\quad}{\overset{+d}{\frown}} \quad \underset{\quad}{\overset{+d}{\frown}} \quad \underset{a_5}{\frown}$$

$$a_5 = a_1 + 4d$$

$$a_{10} = a_1 + 9d.$$

$$(10-4)$$

$$a_{10} = a_4 + \underset{=}{\overset{?}{\quad}} d.$$

$$\underset{a_4}{\frown} \wedge - \wedge - \wedge - \wedge - \wedge - \wedge \underset{a_{10}}{\frown}$$

$$a_4 + 6d = a_{10}$$

Book $a_{10} = a_4 + 6d$

Arithmetic

$\underset{a_4}{\dfrac{7}{}}$ $\underset{a_5}{\dfrac{9}{}}$ . . . = $\underset{a_{16}}{\dfrac{31}{}}$

$d = 2$ $9 - 7 = 2$

$d = $ Right $-$ left

$a_{12} = a_5 + 7d$

$\underset{23}{\Downarrow} = 9 + 7(2)$

$12 - 5 = 7$

Arithmetic

$$a_n = a_1 + (n-1)d$$

$$a_n = a_k + (n-k)d$$

$$d = \text{right} - \text{left}$$

$$S_n = \left(\frac{1st + last}{2}\right)n$$

$$\frac{n}{2}(1st + last)$$

$$\frac{n(a_1 + a_n)}{2}$$

12.3

21-35 ; 38-42