Adding Infinite Sequences In The Form: $a + \frac{a}{b} + \frac{a}{b^2} + ...$

A. Adding sequences of this nature reduces to the following:

$$\sum_{i=1}^{\infty} \frac{a}{b^{i-1}} = a + \frac{a}{b} + \frac{a}{b^2} + ... = \frac{a}{1-r}$$

where a is the first term of the sequence and r is whatever a is being multiplied by, (in this case 1/b).

B. Examples:

Ex [1] $2 + 1 + {}^1/_2 + ... =$ _________.

a. In this example 'a' is 2 since this is the first term and 'b' is $^1/_2$ since every term is being multiplied by $^1/_2$.

b. According to the formula this is equal to $^2/_{(1 - 1/2)}$ which equals $^2/_{(1/2)}$ which equals 4.

c. The answer is 4.

Ex [2] $6 + 4 + {}^8/_3 + ... =$ __________.

a. In this example 'a' is 6 and 'b' is $^2/_3$.

b. According to the formula this is equal to $^6/_{(1 - 2/3)} = {}^6/_{(1/3)} = 18$.

c. The answer is 18.

Ex [3] $12 - 4 + {}^4/_3 - ... =$ __________.

a. In this example 'a' is 12 and 'b' is $-^1/_3$.

b. According to the formula this is equal to $^{12}/_{(1 – (-1/3))} = {}^{12}/_{(4/3)} = 9$.

c. The answer is 9.