Arithmetic Series (Progression)

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

or substituting $a_1 + (n-1)d$ for a_n,

$$S_n = \frac{n(2a_1 + (n-1)d}{2}$$

Find the sum of the following arithmetic progressions with the data shown.

1. **$a_1 = 5$, $d = 3$, and $n = 12$**
2. **$a_1 = -1$, $d = 4$ and $n = 7$**
3. **$a_1 = -6$, $d = ½$ and $n = 4$**
4. **$a_1 = 89$, $d = -4$ and $a_n = 13$**
5. **Find the sum of the first 100 integers**

Find the first 3 terms of the of the arithmetic series with the following information.

6. **$a_1 = 8$, $a_n = 408$, and $S_n = 2288$**
7. **$n = 14$, $a_n = 53$, and $S_n = 378$**
8. **How much did John earn in ten years if his starting salary was $125,000.00 and he received annual increases of $4500.00?**
9. **In the main hall, there are 25 seats in the front row and two seats more in each following row. How many seats are in the first 10 rows?**