Number of Terms in an Arithmetic Series

Determine the number of terms (n) in each arithmetic series using the given sum.

1) $a_1 = \frac{6}{7}, a_n = \frac{25}{14}, S_n = \frac{37}{2}$

2) $\sum_{q=1}^{n} (3.8 + 1.2q) = 672$

3) $\frac{3}{4} + \frac{7}{8} + 1 + \ldots$ up to n terms $= \frac{513}{8}$

4) $a_1 = 24, a_n = 160, S_n = 1656$

5) $\sqrt{3} - 2\sqrt{3} - 5\sqrt{3} - \ldots$ up to n terms $= -76\sqrt{3}$

6) $\sum_{f=1}^{n} \left(\frac{2}{5} + \left(\frac{3}{4}\right)f\right) = \frac{91}{10}$

7) $a_1 = -5.2, a_n = -38.8, S_n = -946$

8) $0.1 + 3.6 + 7.1 + \ldots$ up to n terms $= 667$