7 (A's + B's − C's) time = 11 (A's + C's − B's); hence 7 : 11 :: A's + C's − B's ; A's + B's − C's; then 18 : 4 :: 2 A's : 2 B's − 2 C's ; ∴ 36 B's − 36 C's = 8 A's or 9 B's − 9 C's = 2 A's also, 9 B's + 9 C's = 10 A's, hence 18 C's = 8 A ∴ C's time = $\frac{4}{9}$ A's time, and 18 B's = 12 A's ∴ B's = 9 × 12 ÷ 18 = 6; then A's = 9, B's = 6, and C's = 4. Again, C's stock : A's + B's stocks :: 9 : 36; from this proportion, we find C's = (A's + B's) ÷ 4 = (3 A's − 3 B's) ÷ 2; this gives B's stock = $\frac{5}{7}$ A's.

Let A's stock = 1 × 9 = 9 ⟩ 15 : 1800 :: 9 : 1080 = A's gain.

" B's " = $\frac{5}{7}$ × 6 = $4\frac{2}{7}$ ⟩ 15 : 1800 :: $4\frac{2}{7}$: $514\frac{2}{7}$ = B's gain.

" C's " = $\frac{3}{7}$ × 4 = $1\frac{5}{7}$ ⟩ 15 : 1800 :: $1\frac{5}{7}$: $205\frac{5}{7}$ = C's g'n

sum of products of S & T..... = 15 ⟩ $1800 = sum of gains.

138. A and B are candidates at an election when 680 persons vote, and A is defeated. The same electors vote the following year, when A and B are again candidates, and A is successful, having carried his election by $1\frac{1}{3}$ times as many votes as he before lost by, and his majority; B's the year before :: 9 : 5;