2. Find the cost of 160 lb. of beef at $9\frac{3}{4}$ cts. per pound. Solution: Find the cost of 160 lb. at 10 cts. a pound and subtract the cost of 160 lb. at $\frac{1}{4}$ ct. a pound, that is $160 \times 10 - \frac{1}{4}(160) = 1600 - 40 = \$15.60$.

3. How many hours are there in a year.

(a) $365 \times 24 = 365 \times 25 - 365 = 9125 - 365 = 8760$.

The work of subtracting 365 from 9125 may be done most easily by breaking up the 365 in parts, as follows:—$9125 - 365 = 9125 - 300 - 25 - 40 = 8760$.

Why is 365 broken up as above?

(b) $24 \times 365 = (24 \times 300) + (24 \times 50) + (24 \times 15) = 7200 + 1200 + 360 = 8760$.

Discover the reason for breaking up 365 as in (b).

The method given in Question 3 may be applied in many cases, but no general rule can be given as the number to be broken up will determine the way in which it may be broken up.

To multiply mixed numbers by whole numbers the work may be done from left to right as follows:—

(a) $17\frac{2}{3} \times 2 = (17 \times 2) + (\frac{2}{3} \times 2) = 34\frac{4}{3} = 35\frac{1}{3}$.
(b) $47\frac{3}{4} \times 5 = (47 \times 5) + (\frac{3}{4} \times 5) = 235 + \frac{15}{4} = 238\frac{3}{4}$.

Similarly two mixed numbers may be multiplied by breaking up into parts and working from left to right e. g., $25\frac{2}{3} \times 8\frac{1}{2} = (25 \times 8) + (\frac{2}{3} \times 8) + (25 \times \frac{1}{2}) + (\frac{2}{3} \times \frac{1}{2}) = 200 + 5\frac{1}{3} + 12\frac{1}{2} + \frac{1}{3} = 218\frac{1}{6}$.

In the above each result after the first should be added as obtained and thus save the task of carrying too many numbers in the memory.

By the application of the principles given above, an unlimited number of ways for solving questions mentally may be found.

Exercise XXXIII.

1. Find the cost of 10 yds. cotton at 1s. 4d. per yard.
2. Find the cost of 42 pencils at 2s. 6d. per dozen.
3. Out of £10 9s. 6d. I paid £4 6s. 8d. How much had I left?
4. At 1s. 8d. per yd. how many yards of cloth can be bought for £1?