

Decimalisation of shillings and pence.— For some questions in arithmetic it is convenient to be able to decimalise shillings and pence mentally to any required number of decimal places.

Ex. $13/8\frac{1}{2} = \text{£}·6854166\dots$

Explanation of process.

$$\begin{aligned} 13/8\frac{1}{2} &= \text{£}\frac{13}{20} + \text{£}\frac{8\frac{1}{2}}{240} \\ &= \text{£}\frac{65}{100} + \text{£}\frac{8\frac{1}{2} \times 4\frac{1}{6}}{1000} \\ &= \text{£}·65 + \text{£}\frac{8\frac{1}{2} \times 4}{1000} + \text{£}\frac{\frac{1}{6} \text{ of } 8·5}{1000} \\ &= \text{£}·65 + \text{£}·034 + \text{£}·0014166\dots \\ &= \text{£}·6854166\dots \end{aligned}$$

Thus multiplying the shillings by 5 gives hundredths of £1, and multiplying the pence by $4\frac{1}{6}$ gives thousandths of £1.

To carry out the work mentally

- (1) Multiplying 13/- by 5 gives £·65, set down 6 in the first decimal place, and retain 5 mentally for the second place.
- (2) Multiplying $8\frac{1}{2}$ d. by 4 gives £·034. Combining the previous 5 with the 3 in the second place, we have now £·68, and we retain the 4 mentally for the third place.
- (3) $\frac{1}{6}$ of 8·5d. gives £·0014166. Combining the previous 4 with the 1 of the third place we have finally

$$13/8\frac{1}{2} = \text{£}·6854166\dots$$

The result is evolved place by place, and the process can easily be carried out.

Ex. $18/9\frac{1}{4} = \text{£}·93854166\dots$

$11/2\frac{3}{4} = \text{£}·56145833\dots$

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