

Frequent Decimals

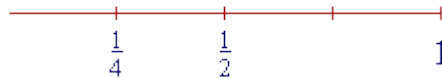
The following fractions come up frequently and we should know their decimal equivalents.

Fraction	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{3}{4}$	$\frac{1}{8}$	$\frac{3}{8}$	$\frac{5}{8}$	$\frac{7}{8}$	$\frac{1}{3}$	$\frac{2}{3}$
Equivalent Decimal	0.5	0.25	0.75	0.125	0.375	0.625	0.875	0.333	0.666

Let us begin with $\frac{1}{2}$.

$$\frac{1}{2} = \frac{5}{10} = .5 \text{ or } .50.$$

Next, $\frac{1}{4}$. But $\frac{1}{4}$ is half of $\frac{1}{2}$.



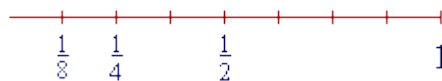
Therefore, its decimal will be half of .50

$$\frac{1}{4} = .25$$

And since $\frac{3}{4} = 3 \times \frac{1}{4}$,

$$\frac{3}{4} = 3 \times .25 = .75$$

Next, $\frac{1}{8}$. But $\frac{1}{8}$ is half of $\frac{1}{4}$.



Therefore, its decimal will be half of .25 or .250

$$\frac{1}{8} = .125$$

The decimals for the rest of the eighths will be multiples of .125.

Since $3 \times 125 = 375$,

$$\frac{3}{8} = 3 \times .125 = .375$$

Similarly, $\frac{5}{8}$ will be $5 \times \frac{1}{8} = 5 \times .125$.

$$5 \times 125 = 5 \times 100 + 5 \times 25 = 500 + 125 = 625.$$

Therefore,

$$\frac{5}{8} = .625$$

Finally, $\frac{7}{8} = 7 \times .125$.

$$7 \times 125 = 7 \times 100 + 7 \times 25 = 700 + 175 = 875.$$

Therefore,

$$\frac{7}{8} = .875$$

The student should also know the decimals for the fifths:

$$\frac{1}{5} = \frac{2}{10} = .2$$

The rest will be the multiples of .2 --

$$\frac{2}{5} = 2 \times \frac{1}{5} = 2 \times .2 = .4$$

$$\frac{3}{5} = 3 \times .2 = .6$$

$$\frac{4}{5} = 4 \times .2 = .8$$