Examples of Division

BRAHMAGUPTA'S RULE OF CONVERSION OF A IMPROPER FRACTION INTO MIXED FRACTION. (DIVISION OF NUMBERS)

$$\frac{a}{b}=\frac{a}{b+h}+\frac{a}{b+h}.\frac{h}{b}$$

As,

$$\frac{a}{b}=\frac{a}{b+h}+\frac{a}{b+h}.\frac{h}{b}=\frac{a}{b+h}+\frac{a}{(b+h)}.\frac{h}{b}=\frac{(ab+ah)=a(b+h)}{b(b+h)}=\frac{a}{b},$$

USING THIS FORMULA WE CAN DIVIDE ANY FRACTION.

Example:-1)

$$\frac{9999}{97}=\frac{9999}{97+2}+\frac{9999}{97+2}.\frac{2}{97}=\frac{9999}{99}+\frac{9999}{99}.\frac{2}{97}=101+101\times\frac{2}{97}=101+\frac{202}{97}$$

$$=101+2+\frac{8}{97}=103+\frac{8}{97}=103\frac{8}{97},$$

Example:-2)

$$\frac{505}{83}=\frac{505}{83+18}+\frac{505}{83+18}.\frac{18}{18}=\frac{505}{101}+\frac{505}{101}.\frac{18}{83}=5+5\times\frac{18}{83}=5+\frac{90}{83}$$

$$=5+1+\frac{7}{83}=6+\frac{7}{83}=6\frac{7}{83},$$

Example:-3)

$$\frac{8989}{76}=\frac{8989}{76+13}+\frac{8989}{76+13}.\frac{13}{76}=\frac{8989}{89}+\frac{8989}{89}.\frac{13}{76}=101+101\times\frac{13}{76}=101+\frac{1313}{76}$$

$$=101+\frac{1313}{76+24}+\frac{1313}{100}.\frac{24}{76}=101+13.13+13.13($$