

Addition	$\frac{a}{b} + \frac{c}{d} = \frac{ad + cb}{bd}$
e.g.	$\frac{1}{2} + \frac{3}{4} = \frac{1 \cdot 4 + 2 \cdot 3}{2 \cdot 4} = \frac{4 + 6}{8} = \frac{10}{8} = \frac{5}{4} = 1\frac{1}{4}$
Subtraction	$\frac{a}{b} - \frac{c}{d} = \frac{ad - cb}{bd}$
Multiplication	$\frac{a}{b} \cdot \frac{c}{d} = \frac{ac}{bd}$
Division	$\frac{a/b}{c/d} = \frac{a}{b} \cdot \frac{d}{c} = \frac{ad}{bc}$
e.g.	$\frac{1/2}{3/4} = \frac{1}{2} \cdot \frac{4}{3} = \frac{4}{6} = \frac{2}{3}$
Exponents	$a^2 = a \cdot a$ $a^3 = a \cdot a \cdot a$ $a^{1/2} = \sqrt{a}$ $a^{1/b} = \sqrt[b]{a}$ $a^{-b} = \frac{1}{a^b}$ $a^{-1} = \frac{1}{a}$
Trigonometry	$A^2 + B^2 = C^2$ $C = \sqrt{A^2 + B^2}$ $\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$ $\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$ $\tan \theta = \frac{\text{opposite}}{\text{adjacent}}$ Therefore, $x = y \sin \theta = A = B \sin \theta$ $y = x \cos \theta = B = A \cos \theta$ $\theta = \tan^{-1} \frac{y}{x} = \tan^{-1} \frac{B}{A} = \arctan \frac{B}{A}$

