

Rational Number Rules

7th Grade

Sign rules applied to fractions and decimals, plus conversion between forms.

ONE FORM AT A TIME

Before you apply a sign rule, put both numbers in the same form.

Fraction → decimal: divide top by bottom. $3/8 = 0.375$

Decimal → fraction: say it, write it. $0.35 = 35/100 = 7/20$

MULTIPLY & DIVIDE — count the minus signs

$$(+)\times(+)=+$$

$$6\times 3=18$$

$$(-)\times(-)=+$$

$$(-6)\times(-3)=18$$

$$(+)\times(-)=-$$

$$6\times(-3)=-18$$

$$(-)\times(+)= -$$

$$(-6)\times 3=-18$$

Even number of minus signs → positive. Odd number → negative. Same for $\div$.

ADD & SUBTRACT

Same signs → add the sizes, keep the sign. $-3.4 + (-1.2) = -4.6$

Different signs → subtract, keep the bigger sign.

$$-5/6 + 1/3 = -5/6 + 2/6 = -3/6 = -1/2$$

Subtracting is adding the opposite: $a - b = a + (-b)$.

FRACTION · DECIMAL · PERCENT

$$1/2 = 0.5$$

$$1/4 = 0.25$$

$$1/3 = 0.333...$$

$$2/5 = 50\%$$

$$3/8 = 25\%$$

$$5/6 = 33\frac{1}{3}\%$$

$$= 0.4$$

$$= 0.375$$

$$= 0.8333...$$

$$= 40\%$$

$$= 37.5\%$$

$$= 83\frac{1}{3}\%$$