1. Order of Operations

When performing operations on an expression or equation, one should perform them in order according to BEDMAS.

1. ***B*rackets**
2. ***E*xponents**
3. ***D*ivision**
   ***M*ultiplication**
4. ***A*ddition**
   ***S*ubtraction**

Examples

Evaluate the following expressions

a) $17-3(4)$

$= 17-12$

$= 5$

b) $12+3(5+3)$

$= 12+3(8)$

$= 12+24$

$= 36$

c) $(-5+3)(7-9)$

$= (-2)(-2)$

$= 4$

d) $\dfrac{[15-19]}{[2+(-3)]}$

$= \dfrac{-4}{-1}$

$= 4$

e) $9-(15-13)^3$

$= 9-(2)^3$

$= 9-8$

$= 1$

f) $3(4)-5(2)$

$= 12-10$

$= 2$

g) -5^2

$= -25$

h) $(-5)^2$

$= (-5)(-5)$

$= 25$

2. Multiplication of Fractions

When multiplying fractions, multiply the tops (numerators) together and then the bottoms (denominators) together.

Examples

a) $\frac{2}{3} \times \frac{5}{4}$

$= \frac{10}{12}$

$= \frac{5}{6}$

b) $-\frac{3}{2} \times \frac{5}{6}$

$= -\frac{15}{12}$

$= -\frac{5}{4}$

c) $\frac{2}{7} \times \frac{5}{3}$

$= \frac{10}{21}$

d) $\frac{5}{1} \times \frac{3}{7}$

$= \frac{15}{7}$

3. Division of Fractions

When dividing two fractions, use the process of "Copy, Flip, Flip".

1. **Copy the first fraction.**
2. **Flip the division sign into multiplication.**
3. **Flip the second fraction and evaluate.**

Examples

a) $\frac{2}{5} \div \frac{1}{7}$ copy flip flip

$= \frac{2}{5} \times \frac{7}{1}$

$= \frac{14}{5}$

b) $\frac{3}{1} \div \frac{2}{11}$

$= \frac{3}{1} \times \frac{11}{2}$

$= \frac{33}{2}$

c) $-\frac{5}{3} \div \frac{9}{2}$

$= -\frac{5}{3} \times \frac{2}{9}$

$= -\frac{10}{27}$

d) $-\frac{2}{3} \div -\frac{7}{8}$

$= -\frac{2}{3} \times -\frac{8}{7}$

$= \frac{16}{21}$