

Tips and mnemonics

Unit 1: Equivalent Forms of Fractions, Decimals, and Percents

Equivalent Fractions

$$\frac{3}{4} \begin{matrix} \times 2 \\ \times 2 \end{matrix} = \frac{6}{8}$$

F → D $\frac{3}{8} \leftarrow \div$ $8\sqrt{3.0}$	D → F $0.24 \rightarrow \frac{24}{100}$ Simplify
P → D $12\% \rightarrow 0.12$	D → P $0.175 \rightarrow 17.5\%$
P → F $26\% \rightarrow 0.26$ $\frac{26}{100} \xrightarrow{+2} \frac{13}{50}$	F → P $\frac{2}{5} \rightarrow 5\sqrt{2.0}$ $0.4 \rightarrow 40\%$

Percent of a Number

PART IS %

WHOLE OF 100

Percent is always out of 100!

Unit 2: Ordering Fractions, Decimals, and Integers

Classifying

Improper & Mixed Fractions

$2\frac{2}{5} = \frac{12}{5}$
 $\frac{13}{5} \rightarrow 5\sqrt{\frac{13}{10}}$
 $2\frac{3}{5}$

Ordering

Change everything to a decimal!
Line up your decimals.

Unit 3: Operations with Positive Fractions and Decimals

Decimals

$$\begin{array}{r} 13.2 \\ +9.0 \\ \hline 22.2 \end{array}$$

$$\begin{array}{r} 13.2 \\ -9.0 \\ \hline 4.2 \end{array}$$

Line 'em up!

$$0.3 \overline{)13.2}$$

$$3 \overline{)132}$$

Move da decimal!

Fractions

$$\frac{3}{4} \div \frac{1}{2} = \frac{3}{4} \times \frac{2}{1} = \frac{6}{4} = 1\frac{2}{4} = 1\frac{1}{2}$$

Keep • Change • Flip

$$\frac{3}{4} \times \frac{1}{2} = \frac{3}{8}$$

When multiplying by a number:

- > | → gets Bigger
- < | → gets Smaller
- = | → stays Same

Tips and mnemonics

Unit 4: Operations with Integers

Absolute Value Always POSITIVE
 $| -4 | = 4$
 $| 2 | = 2$

Opposites
 $3 = -3$
 $-5 = 5$

Zero Pairs

Adding & Subtracting
 Same Sign
 + SUM +
 $-3 - 4 = -7$

Different Sign
 - DIFFERENCE -
 $-3 + 4 = 1$

Multiply & Divide

Sleepy Man
 Only for \times or \div

$3 \times (-2) = -6$
 $(-4) \div (-2) = 2$

Unit 5: Proportional Reasoning with Ratios and Rates

Ratio
 Comparison between 2 things
 people $\frac{4}{7}$
 cookies

Proportion
 miles $\frac{42}{3} = \frac{140}{x}$
 gallon

Don't forget your labels

Unit Rate
 $\frac{\$ 1440}{24} = \frac{x}{1}$
 per

Solving for 1 of something

Conversions
 quart $\frac{4}{1} = \frac{32}{x}$
 gallon

STAAR Chart

Unit 6: Equivalent Expressions and One-Variable Equations

Associative
 $(2+3)+4 = 2+(3+4)$
 $(2 \times 3) \times 4 = 2 \times (3 \times 4)$

Identity
 $2+0=2$
 $2 \times 1=2$

Properties
 Inverse: $(-3)+3=0$
 $3 \times \frac{1}{3}=1$

Commutative
 $2+3=3+2$
 $2 \times 3=3 \times 2$

Prime & Composite
 Only 2 factors: 2, 3, 5, 7, 11
 More than 2 factors: 4, 6, 8, 9, 10, 12, 14, 15, 16

Prime Factorization
 $24 = 2 \times 2 \times 2 \times 3$

PEMDAS
 P: Parentheses (), [], { }
 E: Exponents $4^2=4 \times 4$
 $5^3=5 \times 5 \times 5$
 MD: Multiply and Divide FROM RIGHT TO LEFT
 AS: Add and Subtract

Expressions vs Equations
 $2+3$ $3x$ $5-x$ 9 $2+3=5$ $3x=6$ $5-x=3$
 EQUAL SIGN

Simplify and Solve
 $3x + 5 - 2x + 4$
 Combine like terms!
 $3x - 2x + 5 + 4$
 $1x + 9$

If You See → You Do
 Addition → Subtraction $x + 2 = 6$
 Subtraction → Addition $-2 = -2$
 Multiplication → Division $x = 4$
 Division → Multiplication $2 \cdot \frac{x}{2} = 10 \cdot 2$
 $\frac{x}{2} = 10$
 $x = 20$

Absolute Value

Always POSITIVE


$| -4 | = 4$

$| 2 | = 2$


Opposites

$3 = 3$

$-5 = 5$



Zero Pairs



Adding & Subtracting

Same Sign
+ SUM +

$-3 - 4 = -7$

Different Sign
- DIFFERENCE -

$-3 + 4 = 1$

Decimals

$$\begin{array}{r} 13.2 \\ +9.0 \\ \hline 22.2 \end{array}$$

Line 'em up!

$$\begin{array}{r} 13.2 \\ -9.0 \\ \hline 4.2 \end{array}$$

$$\begin{array}{r} 0.3 \overline{)13.2} \\ \underline{09} \\ 42 \\ \underline{36} \\ 6 \end{array}$$

$$\begin{array}{r} 13.2 \\ \times 3 \\ \hline 396 \end{array}$$

Move da decimal!

Fractions

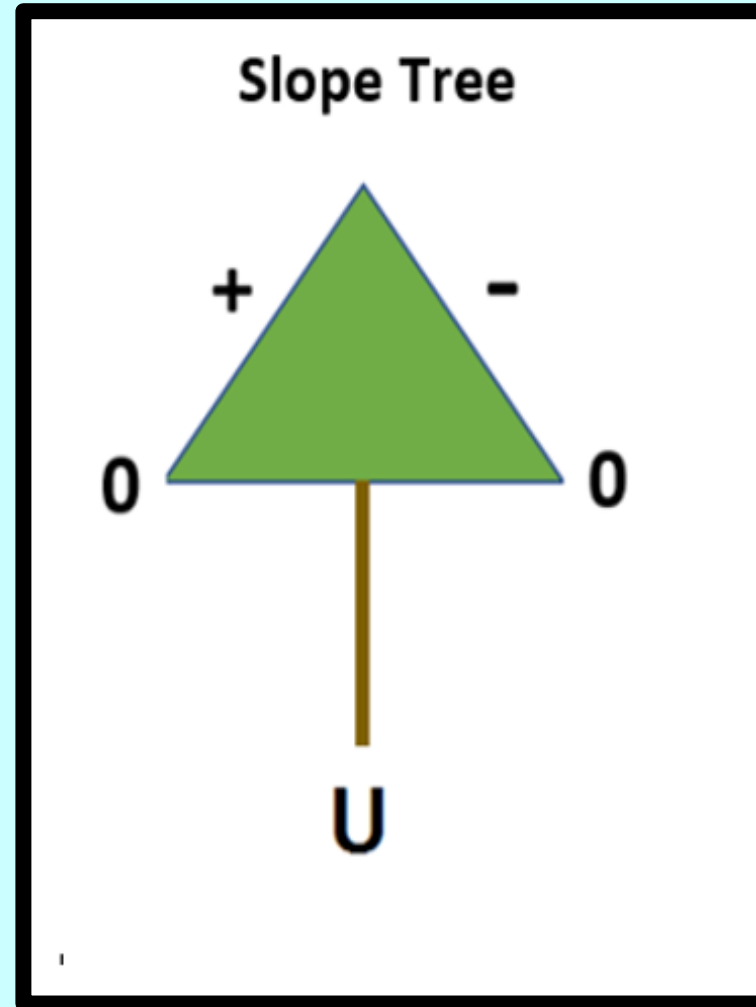
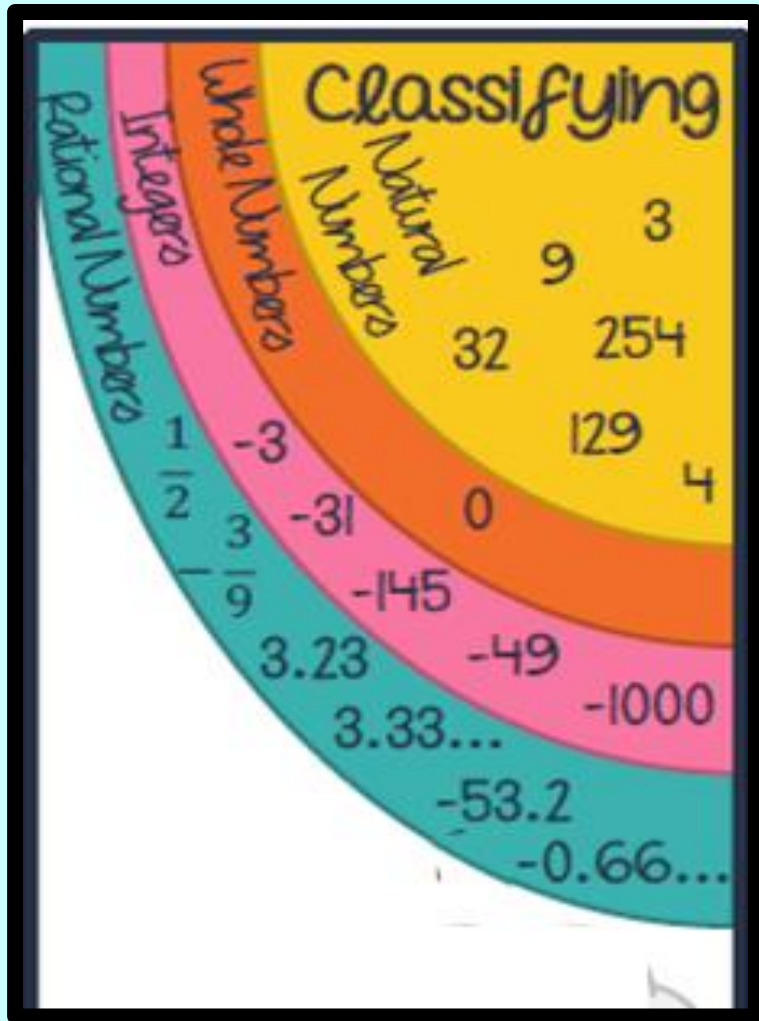
$$\frac{3}{4} \div \frac{1}{2} = \frac{3}{4} \times \frac{2}{1} = \frac{6}{4} \rightarrow 1 \frac{2}{4} \rightarrow 1 \frac{1}{2}$$

Keep • Change • Flip

$$\frac{3}{4} \times \frac{1}{2} = \frac{3}{8}$$

When multiplying by a number -

- > | → gets Bigger
- < | → gets Smaller
- = | → stays Same



Ratio

$$\frac{\text{people } 4}{\text{cookies } 7}$$

Comparison between 2 things

Proportion

$$\frac{\text{miles } \boxed{42}}{\text{gallon } 3} = \frac{140}{X}$$

Don't forget your labels

Unit Rate

$$\frac{\$ 1440}{\text{pin } \boxed{24}} = \frac{X}{1}$$

Solving for 1 of something

Conversions

$$\frac{\text{quart } \boxed{4}}{\text{gallon } 1} = \frac{32}{X}$$

STAAR Chart

Equivalent Fractions

$$\frac{3}{4} \stackrel{\times 2}{=} \frac{6}{8}$$

Improper & Mixed Fractions

$$2\frac{2}{5} = \frac{12}{5}$$

(Note: An arrow points from the 2 to the numerator, and another arrow points from the 2 to the denominator, with an 'x' below the second arrow.)

$$\frac{13}{5} \rightarrow 5\sqrt{\frac{2}{10}}$$

$$2\frac{3}{5}$$



$$F \rightarrow D$$

$$\frac{3}{8} \leftarrow \div$$

$$8\sqrt{3.0}$$

$$D \rightarrow F$$

$$0.24 \rightarrow \frac{24}{100}$$

Simplify

$$P \rightarrow D$$

$$12\% \rightarrow .12.0$$

$$\omega \rightarrow 0.12$$

$$D \rightarrow P$$

$$0.17.5$$

$$\omega \rightarrow 17.5$$

$$P \rightarrow F$$

$$26\% \rightarrow 0.26$$

$$\frac{26}{100} \xrightarrow{+2} \frac{28}{102} = \frac{14}{51}$$

$$F \rightarrow P$$

$$\frac{2}{5} \rightarrow 5\sqrt{2.0}$$

$$\omega \rightarrow 0.4 \rightarrow 40\%$$

Percent of a Number

PART
IS

%

WHOLE
OF

=

100

Percent is always out of 100!

Ordering

Change everything to a decimal!

Line up your decimals.



Associative

$$(2+3)+4=2+(3+4)$$

$$(2 \cdot 3) \cdot 4 = 2 \cdot (3 \cdot 4)$$

Identity

$$2+0=2$$

$$2 \cdot 1=2$$

$$(-3)+3=0$$

$$3 \cdot \frac{1}{3} = 1$$

Inverse

Properties

$$2+3=3+2$$

$$2 \cdot 3=3 \cdot 2$$

Commutative

Prime & Composite

Only 2 factors
5, 7, 11, 13, 17

More than 2 factors
8, 12, 48, 10, 15, 25, 10



Prime Factorization

P

Parentheses: (), [], { }

E

Exponents $4^2, 4 \cdot 4$

$$5^3 = 5 \cdot 5 \cdot 5$$

M D

Multiply and Divide

A S

FROM RIGHT TO LEFT

Add and Subtract

Expressions vs Equations

$$2+3 \quad 3x \quad 5-x \quad 9$$

$$2+3=5 \quad 3x+6 \quad 5-x+3$$

EQUAL SIGN!

Simplify and Solve

Box X's Order #9

$$\boxed{3x} + \boxed{5} - \boxed{2x} + \boxed{4}$$

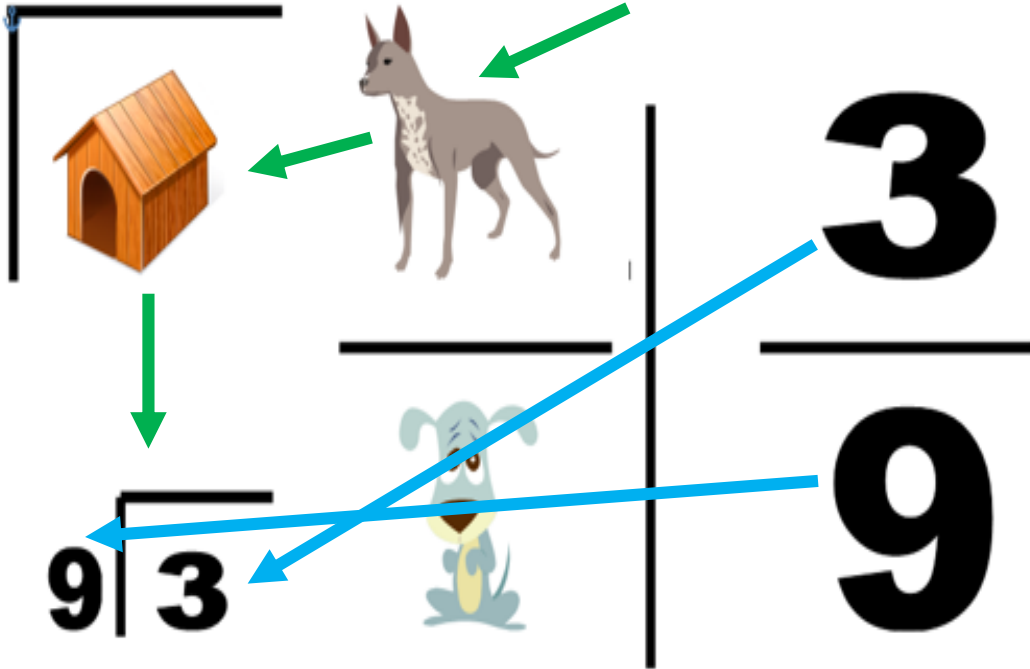
Combine like terms!

$$3x - 2x + 5 + 4$$
$$1x \rightarrow x \quad x + 9 \quad 9$$

If You See → You Do	$x + 2 = 6$
Addition → Subtraction	$-2 \quad -2$
Subtraction → Addition	$x = 4$
Multiplication → Division	$2 \cdot \frac{x}{2} = 10 \cdot 2$
Division → Multiplication	$x = 20$

TIBO/NIDO

Top Dog goes inside the dog house



DR IDI OXY



Domain	Range
Independent	Dependent
Input	Output
X	Y

Rotations

