F → D

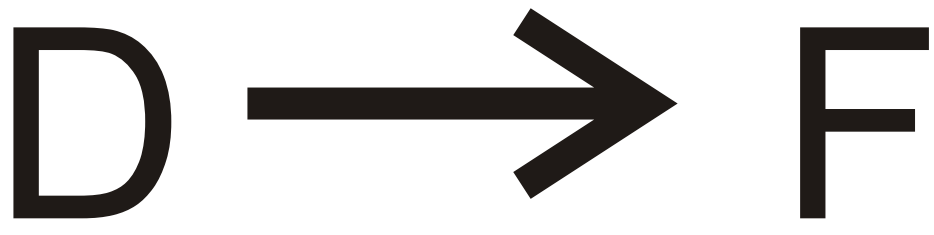
Fractions to Decimals

Top ÷ Bottom

$$\frac{\text{Top}}{\text{Bottom}} \qquad \text{B}\overline{)\text{T}}$$

$$\frac{1}{5} = 1 \div 5 = 5\overline{)1.0} = .2$$

$$\begin{array}{r} .2 \\ 5\overline{)1.0} \\ \underline{1\ 0} \\ 0 \end{array}$$

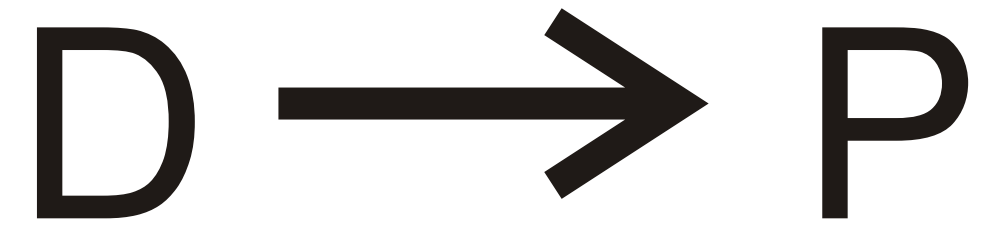


Decimals to Fractions (terminating decimals)

$\frac{.2}{1}$ Put a 1 under the decimal to make it a fraction.

$\frac{2}{10}$ Move the decimal to the end and put a zero on the bottom for each space the decimal is moved. (You can drop the decimal point).

$\frac{2}{10} \frac{\div 2}{\div 2} = \frac{1}{5}$ Reduce if possible.



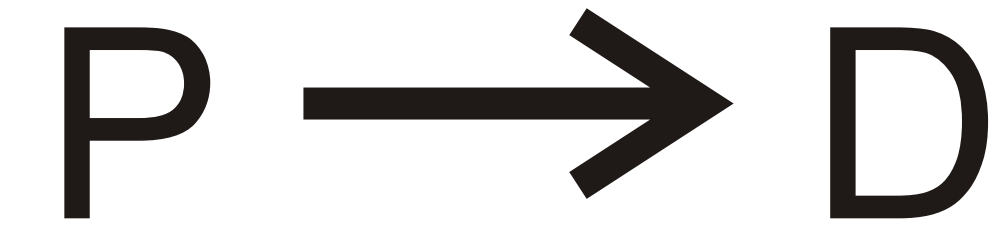
Decimals to Percents

(To go from D to P on the alphabet you move to the right, forward, move the decimal the same way.)

Move the decimal 2 spaces to the right and add a % sign.

.273 = 27.3%

3.89 = 389%

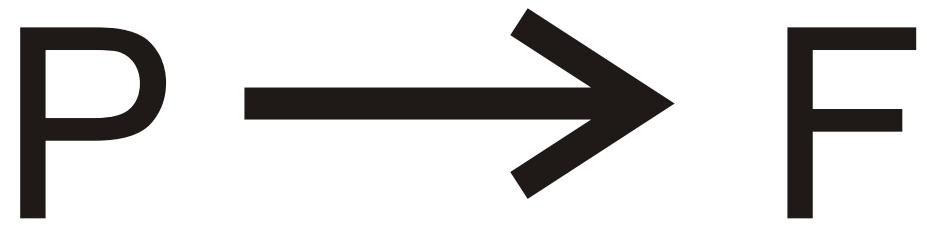


Percents to Decimals

(To go from P to D on the alphabet you move to the left, backwards, move the decimal the same way.)

Move the decimal 2 spaces to the left, remove the %.

35.4% = .354



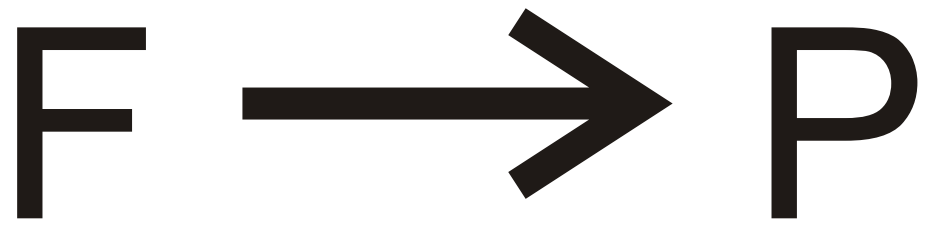
Percents to Fractions

(The percent symbol means divide by 100, replace it by putting the percent over 100)

56%

$\frac{56}{100}$ Put the percent over 100 and remove the %.

$\frac{56}{100} \frac{\div 2}{\div 2} = \frac{23}{50}$ Reduce if possible.



Fractions to Percents

If you can make the bottom of the fraction 100 do it. Then replace the divide by 100 part with a % sign.

$$\frac{7}{25}\ \begin{matrix}\bullet 4\\ \bullet 4\end{matrix} = \frac{28}{100} = 28\%$$

If you can't do that, then turn the fraction into a decimal and turn the decimal into a percent. This always works.

x÷ Pos &Neg #'s

The answer is positive if there is an even number of minus signs (Even number of negative factors).

$(-2)(-3) = 6$

$(-5)(-5)(-2)(-2) = 100$

The answer is negative if there is an odd number of minus signs. (Odd number of negative factors).

$(-1)(-1)(-2) = -2$

$$\frac{(-3)(-4)(-2)}{(-6)(-2)} = -2$$

+- Pos &Neg #’s

1. Clear all double operators
(change - - to +, change + - to -).

2. The team with the most points wins. The sign of the answer is the sign of the winning team.

3. How many points did the winners beat the losers by? That is the number part of the answer.

-3 -2 = -5.
Negative wins by 5, answer is -5

-4 + 6 =2.
Positive wins by 2, answer is 2.

-7 + 3 = -4.
Negative wins by 4, the answer is -4.

28 - 9 = 19.
Positive wins by 19, the answer is 19.

Add, Subtract, Multiply, and Divide Fractions

Fraction Problems

1. Convert all mixed fractions to improper fractions (this makes the job easier).

2. If you are adding or subtracting fractions they must have common denominators. If they don't have common denominators you need to give them common denominators. (Common denominators aren't necessary for multiplying or dividing fractions.)

3. If you are multiplying fractions just multiply top times top and bottom times bottom.

4. If you are dividing fractions change the division to multiplication, replace the divisor with its reciprocal, and multiply top times top and bottom times bottom.

5. Reduce the answer when possible.

Multiplying Fractions

1. Top times top, bottom times bottom.
2. Reduce if possible.

$$\frac{2}{5} \cdot \frac{3}{5} = \frac{2 \cdot 3}{5 \cdot 5} = \frac{6}{25}$$

$$\frac{2}{6} \cdot \frac{3}{6} = \frac{2 \cdot 3}{6 \cdot 6} = \frac{6}{36} \frac{\div 6}{\div 6} = \frac{1}{6}$$

Dividing Fractions

1. Change ÷ to • (change division to multiplication).
2. Flip the divisor (replace the divisor with its reciprocal).
3. Reduce if possible.

$$\frac{2}{5} \div \frac{3}{5} = \frac{2}{5} \cdot \frac{5}{3} = \frac{10}{15} \frac{\div 5}{\div 5} = \frac{2}{3}$$

Adding Fractions with Common Denominators

1. Keep the bottoms, add the tops.
2. Reduce if possible.

$$\frac{1}{5}+\frac{3}{5}=\frac{1+3}{5}=\frac{4}{5}$$

$$\frac{1}{8}+\frac{3}{8}=\frac{1+3}{8}=\frac{4\div4}{8\div4}=\frac{1}{2}$$

Subtracting Fractions with Common Denominators

1. Keep the bottoms,subtract the tops.
2. Reduce if possible.

$$\frac{3}{5} - \frac{1}{5} = \frac{3-1}{5} = \frac{2}{5}$$

$$\frac{5}{6} - \frac{1}{6} = \frac{5-1}{6} = \frac{4 \div 2}{6 \div 2} = \frac{2}{3}$$

Adding Fractions w/o Common Denominators

1. Make the bottoms the same, use the product method.
2. Add the tops, keep the bottoms.
3. Reduce if possible.

$$\frac{1}{5}+\frac{3}{8}$$

$$\frac{8}{8}\cdot\frac{1}{5}+\frac{3}{8}\cdot\frac{5}{5}$$

$$\frac{8}{40}+\frac{15}{40}$$

$$\frac{23}{40}$$

Subtracting Fractions w/o Common Denominators

1. Make the bottoms the same, use the product method.
2. Subtract the tops, keep the bottoms.
3. Reduce if possible.

$$\frac{1}{5} - \frac{1}{8}$$

$$\frac{8}{8} \cdot \frac{1}{5} - \frac{1}{8} \cdot \frac{5}{5}$$

$$\frac{8}{40} - \frac{5}{40} = \frac{3}{40}$$

Common Denominators LCD method

$$\frac{1}{8} - \frac{1}{10}$$

1. Write the bottoms as products of prime numbers.

$$\frac{1}{2 \cdot 2 \cdot 2} - \frac{1}{5 \cdot 2}$$

2. Circle the prime numbers that are in both denominators. Box the numbers that are not in both denominators.

$$\frac{1}{\textcircled{2} \cdot \boxed{2} \cdot \boxed{2}} - \frac{1}{\boxed{5} \cdot \textcircled{2}}$$

3. Multiply the top and bottom of the left fraction by the numbers that are in boxes on the bottom of the right fraction. Multiply the top and bottom of the right fraction by the numbers that are in boxes on the bottom of the left fraction.

$$\frac{\boxed{5} \cdot 1}{\boxed{5} \cdot \textcircled{2} \cdot \boxed{2} \cdot \boxed{2}} - \frac{1 \cdot \boxed{2} \cdot \boxed{2}}{\boxed{5} \cdot \textcircled{2} \cdot \boxed{2} \cdot \boxed{2}}$$

$$\frac{5}{40} - \frac{4}{40} = \frac{1}{40}$$