

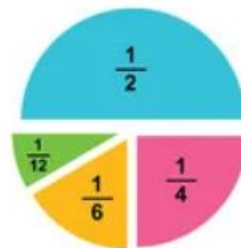
Procedures for Fractions

$$\frac{11}{12}$$

$$\frac{5}{8}$$

$$\frac{4}{10}$$

$$\frac{2}{11}$$



Adding fractions

$$\frac{1}{7} + \frac{2}{7} = \frac{3}{7}$$

If the denominators are the same, just add the numerators.

$$\frac{1}{4} + \frac{8}{12}$$

$$\rightarrow \frac{1}{4} \times 3 = \frac{3}{12} \rightarrow \frac{3}{12} + \frac{8}{12} = \frac{11}{12}$$

One denominator is a factor of the other. Multiply both the numerator and denominator.

$$\frac{2}{3} + \frac{1}{7} \rightarrow \frac{2}{3} \times 7 = \frac{14}{21} \rightarrow \frac{1}{7} \times 3 = \frac{3}{21} \rightarrow \frac{14}{21} + \frac{3}{21} = \frac{17}{21}$$

Fractions of amounts

$$\frac{2}{3} \text{ of } 15 \quad \text{OR} \quad \frac{2}{3} \times 15$$

If the denominator is a factor of the amount, then divide by the denominator and multiply by the numerator.

$$15 \div 3 = 5$$

$$5 \times 2 = 10$$

$$\frac{3}{5} \times 4$$

Multiply by the numerator and divide by the denominator if it's not a factor.

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

Convert to a mixed number.

Multiplying fractions

$$\frac{3}{7} \times \frac{8}{9} = \frac{24}{63}$$

Multiply the two numerators.
Multiply the two denominators.

$$2\frac{1}{3} \times 5 \rightarrow \frac{1}{3} \times 5 \rightarrow \frac{5}{3} \rightarrow 1\frac{2}{3} \rightarrow 2 \times 5 = 10 \rightarrow 1\frac{2}{3} + 10 = 11\frac{2}{3}$$

Multiply the whole number by the fraction and convert to a mixed number.

Multiply the two whole numbers. Then add the answers together to find the total.

Dividing fractions

$$\frac{4}{7} \div 3 = \frac{4}{21}$$

Dividing by 3 is the equivalent to multiplying by one third.

$$\frac{4}{7} \times \frac{1}{3}$$

Subtracting fractions

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$$10 - 1\frac{1}{2}$$

Subtract the whole.
E.g. $10 - 1 = 9$. Then
subtract the
fraction.

$$= 8\frac{1}{2}$$

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

Convert the mixed
number to an
improper fraction.

$$\rightarrow \frac{5}{2} - \frac{3}{5} \rightarrow \frac{5}{2} \times 5 \frac{25}{10} \rightarrow \frac{3}{5} \times 2 \frac{6}{10}$$

Multiply both fractions so they have the same
denominator.

$$1\frac{9}{10}$$

$$\frac{25}{10} - \frac{6}{10} = \frac{19}{10}$$

Subtract. Then convert to a
mixed number.

Adding mixed numbers

$$1\frac{3}{4} + 2\frac{3}{5}$$

Add the whole
numbers first.

$$1 + 2 = 3$$

$$\rightarrow \frac{3}{4} \times 5 \frac{15}{20} \rightarrow \frac{3}{5} \times 4 \frac{12}{20} \rightarrow \frac{15}{20} + \frac{12}{20} = \frac{27}{20}$$

Multiply both fractions so they have the same denominator.

$$1\frac{7}{20} + 3 = 4\frac{7}{20}$$

Add the
numerators.

$$= 1\frac{7}{20}$$

Convert to a mixed number
then add the wholes.

Converting fractions to decimals and percentages

$$\frac{14}{100} = 0.14 = 14\%$$

$$\frac{4}{10} \times 10 \frac{40}{100} = 0.4 = 40\%$$

$$\frac{6}{25} \times 4 \frac{24}{100} = 0.24 = 24\%$$

Convert to a fraction over 100.

$$\frac{2}{5} \times 20 \frac{40}{100} = 0.4 = 40\%$$

Learn these:

$$\frac{1}{4} = 0.25 = 25\%$$

$$\frac{1}{2} = 0.5 = 50\%$$

$$\frac{3}{4} = 0.75 = 75\%$$

Converting improper fractions and mixed numbers

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$5\frac{5}{6}$

Multiply the denominator by the whole. Then add on the numerator.

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$5 \times 6 = 30$
 $30 + 5 = 35$

→

$\frac{35}{6}$

Write the original denominator.

$\frac{43}{8}$

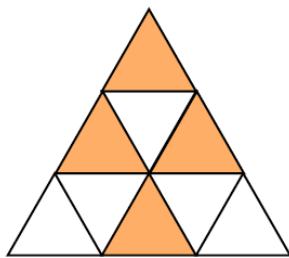
Divide the numerator by the denominator. This will give the number of whole parts and the fraction that is left.

 $43 \div 8 = 5 \text{ and } 3 \text{ remainders}$

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$5\frac{3}{8}$

Fractions of shapes



If all of the parts are equal, count the number of parts that have been shaded. This is the numerator.

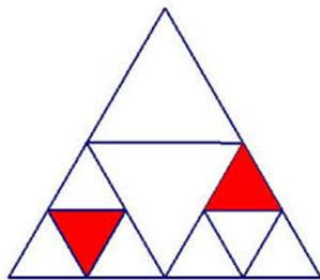
= 4 shaded parts.

Then count how many parts altogether. This is the denominator.



$\frac{4}{9}$

4 out of 9 equal parts are shaded.



If the parts are unequal, separate the shape into equal parts first. Then count the number of parts that have been shaded. This is the numerator.

= 2 shaded parts.

Then count how many parts altogether. This is the denominator.

= 16 parts altogether.



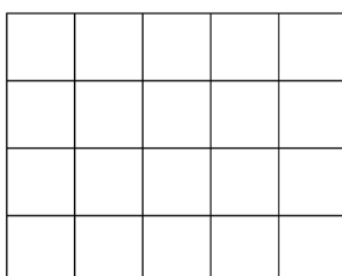
$\frac{2}{16}$



$\frac{1}{8}$

Simplify to its lowest form. s

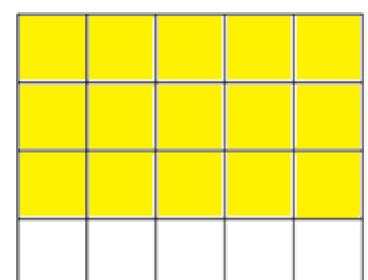
Shade in $\frac{3}{4}$ of the shape below.



Count how many equal parts there are altogether. Then divide by the denominator and multiply by the numerator.

$$20 \div 4 = 5$$

$$5 \times 3 = 15$$



15 out of 20 equal parts = $\frac{3}{4}$