

# Adding and Subtracting Fractions

## 1. Table Problems

<p>Jessica bought <math>\frac{8}{9}</math> of a pound of chocolates and ate <math>\frac{1}{3}</math> of a pound. How much was left?</p> <p><b>Left</b>=&gt; subtract</p> $\frac{8}{9} - \frac{1}{3}$ <p>Multiplies:</p> <ul style="list-style-type: none"> <li>• 9: 9, 18, 27, 36</li> <li>• 3: 3, 6, 9, 12, 15</li> </ul> <p><b>LCD: 9 (we need to reach 9 at the denominator)</b></p> $\frac{8(\times 1)}{9(\times 1)} - \frac{1(\times 3)}{3(\times 3)} = \frac{8}{9} - \frac{3}{9}$ $\frac{8-3}{9} = \frac{5}{9}$	<p>Sam rode his bike <math>\frac{2}{5}</math> of a mile and walked another <math>\frac{3}{4}</math> of a mile. How far did he travel?</p> <p><b>And</b>=&gt; add</p> $\frac{2}{5} + \frac{3}{4}$ <p>Multiplies:</p> <ul style="list-style-type: none"> <li>• 5: 5, 10, 15, 20, 25, 30</li> <li>• 4: 4, 8, 12, 16, 20, 24, 28</li> </ul> <p><b>LCD: 20 (we need to reach 20 at the denominator)</b></p> $\frac{2(\times 4)}{5(\times 4)} + \frac{3(\times 5)}{4(\times 5)} = \frac{8}{20} + \frac{15}{20}$ $\frac{8+15}{20} = \frac{23}{20}$
<p>Sally walked <math>\frac{3}{4}</math> of a mile before lunch and <math>\frac{1}{2}</math> of a mile after lunch. How far did she walk in all?</p> <p><b>In all</b> =&gt; add</p> $\frac{3}{4} + \frac{1}{2}$ <p>Multiplies:</p> <ul style="list-style-type: none"> <li>• 4: 4, 8, 12, 16, 20, 24, 28</li> <li>• 2: 2, 4, 6, 8, 10, 12, 14</li> </ul> <p><b>LCD: 4 (we need to reach 4 at the denominator)</b></p> $\frac{3(\times 1)}{4(\times 1)} + \frac{1(\times 2)}{2(\times 2)} = \frac{3}{4} + \frac{2}{4}$	<p>The track is <math>\frac{3}{5}</math> of a mile long. If Tyrone jogged around it twice, how far did he run?</p> <p><b>Twice</b> =&gt; add the same thing to each other two times</p> $\frac{3}{5} + \frac{3}{5}$ <p>Multiplies:</p> <ul style="list-style-type: none"> <li>• 5: 5, 10, 15, 20, 25, 30</li> <li>• 5: 5, 10, 15, 20, 25, 30</li> </ul> <p><b>LCD: 5 (we need to reach 5 at the denominator)</b></p> $\frac{3(\times 1)}{5(\times 1)} + \frac{3(\times 1)}{5(\times 1)} = \frac{3}{5} + \frac{3}{5}$

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

$$\frac{3 + 3}{5} = \frac{6}{5}$$

Which apple weighs more, one that weighs  $\frac{2}{3}$  of a pound or one that weighs  $\frac{5}{6}$  of a pound?

**Which \_\_\_ more => comparing**

$$\frac{2}{3} \text{ — } \frac{5}{6}$$

Multiplies:

- 3: 3, 6, 9, 12, 15
- 6: 6, 12, 18, 24, 30

**LCD: 6 (we need to reach 6 at the denominator)**

$$\frac{2(\times 2)}{3(\times 2)} \text{ — } \frac{5(\times 1)}{6(\times 1)} = \frac{4}{6} \text{ — } \frac{5}{6}$$

Is 4 less than or greater than 5?

$$\frac{4}{6} < \frac{5}{6}$$

So,

$$\frac{2}{3} \text{ weighs less than } \frac{5}{6}$$

Stanley ordered two pizzas cut into eighths. If he ate  $\frac{5}{8}$  of a pizza, how much was left?

**Left=> subtract**

**2 whole cut into eights =>**

We have 16 slices (2 pizzas and each has 8 slice) and they are **cut (denominator)** into 8

$$\frac{16}{8}$$

Now, let's subtract the fractions

$$\frac{16}{8} - \frac{5}{8}$$

Multiplies:

- 8: 8, 16, 24, 32
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**LCD: 8 (we need to reach 8 at the denominator)**

$$\frac{16(\times 1)}{8(\times 1)} - \frac{5(\times 1)}{8(\times 1)} = \frac{16}{8} - \frac{5}{8}$$

$$\frac{16 - 5}{8} = \frac{11}{8}$$

Sandra bought  $2\frac{3}{4}$  yards of red fabric and  $1\frac{1}{4}$  of blue. How much cloth did she buy in all?

**In all => add**

Change the fraction to an improper fraction:

$$2\frac{3}{4} = \frac{(2 * 4) + 3}{4} = \frac{11}{4}$$

$$1\frac{1}{4} = \frac{(1 * 4) + 1}{4} = \frac{5}{4}$$

An equilateral triangle measures  $3\frac{1}{2}$  inches on one side. What is the perimeter of the triangle?

**Perimeter => add all sides of the triangle**

(the triangle has 3 soooo add it three times)

Change the fraction to an improper fraction:

$$3\frac{1}{2} = \frac{(3 * 2) + 1}{2} = \frac{7}{2}$$

$$\frac{11}{4} + \frac{5}{4}$$

Multiplies:

- 4: 4, 8, 12, 16, 20, 24, 28
- 4: 4, 8, 12, 16, 20, 24, 28

**LCD: 4 (we need to reach 4 at the denominator)**

$$\frac{11(\times 1)}{4(\times 1)} + \frac{5(\times 1)}{4(\times 1)} = \frac{11}{4} + \frac{5}{4}$$
$$\frac{11 + 5}{4} = \frac{16}{4} = 4$$

$$\frac{7}{2} + \frac{7}{2} + \frac{7}{2}$$

Multiplies:

- 2: 2, 4, 6, 8, 10, 12, 14
- 2: 2, 4, 6, 8, 10, 12, 14
- 2: 2, 4, 6, 8, 10, 12, 14

**LCD: 2 (we need to reach 2 at the denominator)**

$$\frac{7(\times 1)}{2(\times 1)} + \frac{7(\times 1)}{2(\times 1)} + \frac{7(\times 1)}{2(\times 1)} = \frac{7}{2} + \frac{7}{2} + \frac{7}{2} =$$
$$\frac{7 + 7 + 7}{2} = \frac{14 + 7}{2} = \frac{21}{2}$$

## 2. Visual Problems

