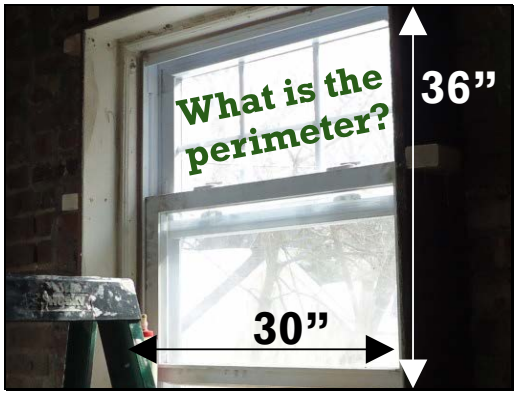
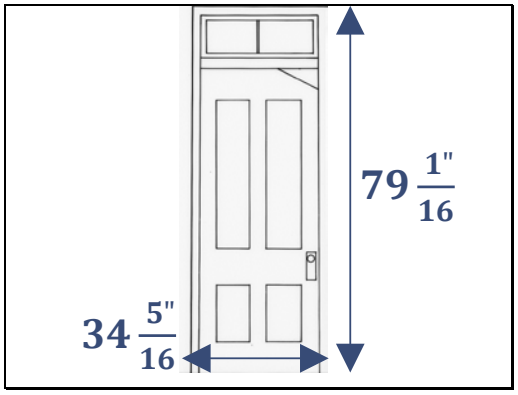
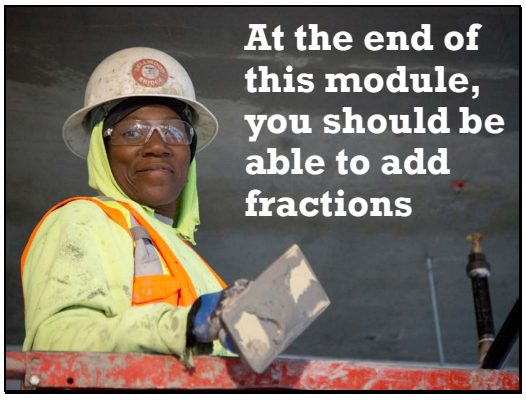
Adding Fractions Handout



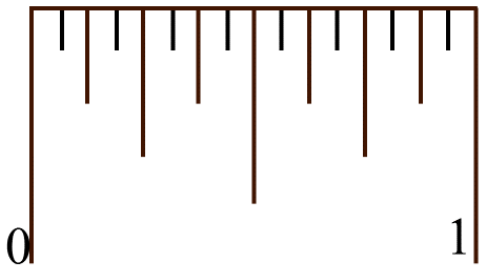




Brownies need:	$1\frac{1"}{4}$	**cups of flour**
Cookies need:	$1\frac{3"}{4}$	**cups of flour**
Total needed:	**?**	**cups of flour**

Adding fractions is very different than multiplying fractions.

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

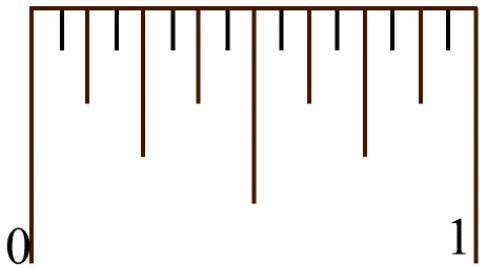


In construction, <u>multiplying</u> fractions can result in a smaller number.

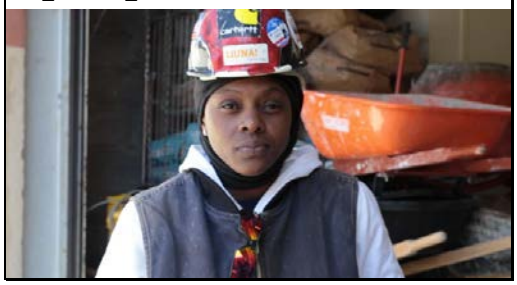
but

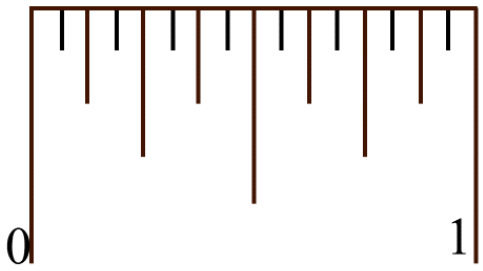
<u>Adding</u> fractions *<u>never</u>* results in a smaller number.

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



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





$$\frac{5}{16}+\frac{1}{16}+\frac{3}{16}=$$

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

$$\frac{11}{16} + \frac{9}{16} + \frac{3}{16}$$

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

$$\frac{1}{8} + \frac{7}{8} =$$

$$\frac{5}{16} + \frac{7}{16} =$$

Brownies need:	$1\frac{1}{4}$"	**cups of flour**
Cookies need:	$1\frac{3}{4}$"	**cups of flour**
Total needed:	**?**	**cups of flour**

Add whole numbers first, then the fractions, then combine.

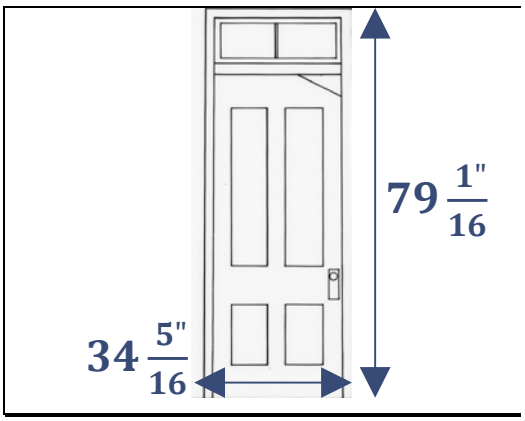
$1\ C + 1C = 2C$

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

Total needed: $2\ C + 1C = 3C$ **of flour**

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

$1\frac{5}{16} + 2\frac{1}{16} + \frac{7}{16} =$



Three pieces of 3/8" thick plywood are stacked on each other. What is the total thickness of the three pieces?

When <u>multiplying</u> fractions you can just multiply the bottom numbers, then then top numbers, even if they are different.

$$\frac{3}{4} \times \frac{5}{8} = \frac{15}{32}$$

$$\frac{3}{4} + \frac{5}{8} =$$

How many of those things there are → **1**

What is being counted → **4**

There is one → **1**

Fourth → **4**

There is one → 1

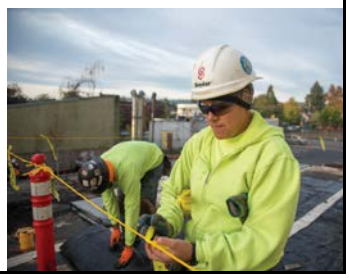
Half → $\frac{1}{2}$

Not the same things!

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

=

$\frac{3}{4} + \frac{5}{8} =$



$\frac{3}{4} + \frac{5}{8} =$ $\frac{6}{8} + \frac{5}{8} = \frac{11}{8} = 1\frac{3}{8}$

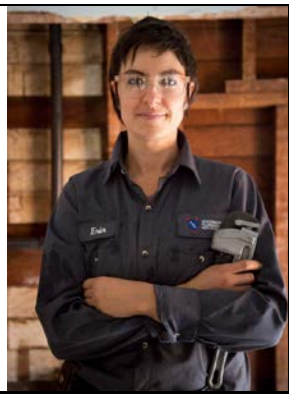
$\frac{3}{4}$ 

is the same as

$\frac{6}{8}$ 

$\frac{1}{2} + \frac{1}{8} + \frac{3}{16} =$

How to add fractions with different bottom numbers



To add fractions with different bottom numbers, rename one (or more) of the fractions so they all have the same bottom number.

When you rename a fraction, the amount stays the same!

$\frac{1}{2}$

$\frac{2}{4}$

If the bottom number of one (or more) of the fractions divides evenly into the bottom number of another fraction, rename the fraction(s) so they all have the larger bottom number.

$$\frac{1}{4} + \frac{1}{2} =$$

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

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

$$\frac{1}{4} + \frac{1}{2} =$$

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

$$\frac{3}{4} + \frac{5}{8} =$$

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

$$\frac{3}{4} + \frac{5}{8} =$$

$$\frac{6}{8} + \frac{5}{8} = \frac{11}{8} = 1\frac{3}{8}$$

$$\frac{1}{2} + \frac{1}{8} + \frac{3}{16} =$$

$$\frac{1}{2} \text{ x } 8 = \frac{8}{16}$$

$$\frac{1}{2} \text{ x } 8 = \frac{8}{16}$$

$$\frac{1}{2} + \frac{1}{8} + \frac{3}{16} =$$

$$\frac{1}{8} \text{ x } 2 = \frac{2}{16}$$

$$\frac{1}{8} \text{ x } 2 = \frac{2}{16}$$

$$\frac{1}{2} + \frac{1}{8} + \frac{3}{16} =$$

$$\frac{8}{16} + \frac{2}{16} + \frac{3}{16} = \frac{13}{16}$$

Add whole numbers first,
then fractions,
then combine.

$$3\frac{9}{16} + 22\frac{3}{4} + 14\frac{1}{2} =$$

$$3\frac{9}{16} + 22\frac{3}{4} + 14\frac{1}{2} =$$

$$3 + 22 + 14 = 39$$

$$\frac{9}{16} + \frac{3}{4} + \frac{1}{2} =$$

$$3 \times 4 = 12$$

$$\overline{4} \times 4 = \overline{16}$$

$$\frac{9}{16} + \frac{3}{4} + \frac{1}{2} =$$

$$\frac{1}{2} \times \frac{8}{8} = \frac{8}{16}$$

$$\frac{9}{16} + \frac{3}{4} + \frac{1}{2} =$$

$$\frac{9}{16} + \frac{12}{16} + \frac{8}{16} = \frac{29}{16} = 1\frac{13}{16}$$

$$1\frac{13}{16} + 39 = 40\frac{13}{16}$$

$$\frac{1}{4} + \frac{15}{16} + 9\frac{7}{8} =$$

$$67\frac{1''}{4} \text{ x } 3\frac{5''}{8} =$$

For a tiling job you have the following amounts of grout. What is the total amount of grout you have?

$2\frac{3}{4}$ lbs.

$7\frac{1}{2}$ lbs.

$15\frac{1}{4}$ lbs.

Adding Fractions Practice

Find the answer for each of the following. Change any fractions larger than 1 to a mixed number and simplify your answer if necessary.

1. $\frac{3}{16} + \frac{7}{16} =$

2. $\frac{1}{8} + \frac{3}{8} =$

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

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

5. $\frac{7}{16} + \frac{5}{16} =$

6. $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} =$

7. $\frac{3}{8} + \frac{1}{8} + \frac{3}{8} =$

8. $\frac{7}{16} + \frac{1}{16} + \frac{5}{16} =$

9. $\frac{9}{16} + \frac{7}{16} + \frac{1}{8} =$

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

11. $11\frac{5}{8} + \frac{3}{8} =$

12. $26\frac{1}{4} + 12\ \frac{5}{16} =$

13. $44\frac{3}{4} + 31\ \frac{1}{8} =$

14. $\frac{13}{16} + 5\ \frac{5}{8} + 10\frac{1}{4} =$

15. $31\frac{1}{2} + 3\ \frac{3}{4} + 17\frac{7}{8} =$

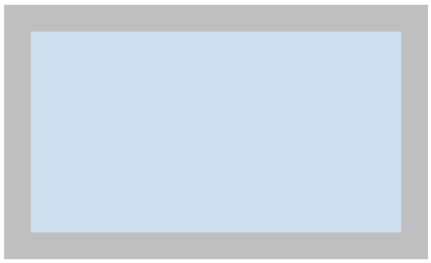
Find the perimeter of the following objects in inches. The drawings are not to scale. Change any fractions larger than 1 to a mixed number and simplify your answer if necessary.

16.This landing at the top of a stairway.

$33\frac{3}{16}$"

$55\frac{1}{4}$"

17.This window.



$27\frac{5}{8}$"

$36\frac{1}{2}$"

18.This bathroom sink countertop.

$21\frac{3}{4}$"

$40\frac{9}{16}$"

19.This chimney opening.

$15\frac{11}{16}$"

$15\frac{11}{16}$"

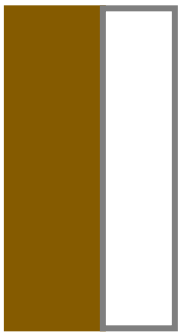
20.This ventilation duct.

$10\frac{3}{4}"$

$17\frac{5}{8}"$

For each of the following, write out the fractions and find the answer. Change any fractions larger than 1 to a mixed number and simplify your answer if necessary.

21.A sheet of drywall 3/8” thick is nailed to a wall stud that is 1/2” thick. What is the total thickness of the stud and drywall**?**



$\frac{1"}{2}$ $\frac{3"}{8}$

22. You need the following amounts of mulch for a landscaping job. What is the total amount of mulch that you need?

- $3\frac{1}{2}$ cubic yards
- $4\frac{3}{4}$ cubic yards
- $5\frac{3}{4}$ cubic yards

23. You have the following pieces of wood trim. What is the total length of trim that you have?

- $18\frac{9}{16}$”
- $27\frac{7}{8}$”
- $32\frac{1}{4}$”

24. Cork floor tiles that are 3/16” thick is being installed on a subfloor (the wood that is directly under the flooring) that is 5/8”thick. What is the total thickness of the flooring and subfloor?