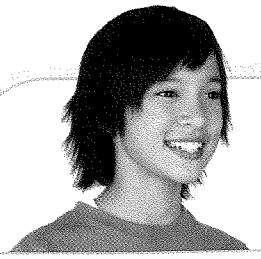
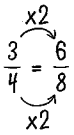


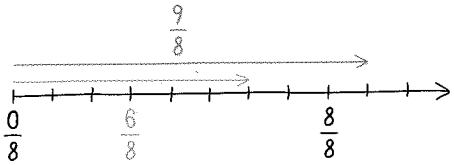
Example 2 Subtracting using a number line

Calculate $\frac{9}{8} - \frac{3}{4}$ using a number line.

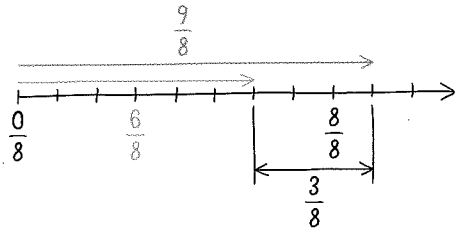
Megan's Solution



The least common multiple of 8 and 4 is 8. I renamed $\frac{3}{4}$ using an equivalent fraction with a denominator of 8.



I knew that $\frac{9}{8}$ is $\frac{1}{8}$ more than 1 $\left(\frac{8}{8}\right)$.
I drew arrows to show $\frac{9}{8}$ and $\frac{6}{8}$.



There are 3 eighths from $\frac{6}{8}$ to $\frac{9}{8}$.

$\frac{9}{8} - \frac{3}{4} = \frac{3}{8}$

A Checking

1. Calculate. Show your work.

a) $\frac{3}{4} + \frac{1}{6}$ **b)** $\frac{6}{5} - \frac{2}{3}$

2. About $\frac{1}{5}$ of the members of the Vancouver Symphony Orchestra play a woodwind. About $\frac{1}{4}$ play the violin.

a) What total fraction of the orchestra do these members represent?

b) What fraction tells how many more members play the violin than a woodwind?

B Practising

3. Calculate.

a) $\frac{2}{3} + \frac{1}{2}$ **b)** $\frac{11}{12} + \frac{1}{4}$ **c)** $\frac{8}{9} - \frac{2}{3}$ **d)** $\frac{6}{7} - \frac{1}{3}$

4. Jake ate $\frac{3}{8}$ of a pan of lasagna, and his dad ate $\frac{1}{4}$ of the pan. Marie and Leah ate the rest. How much lasagna did the girls eat?

5. Leanne put some of her allowance into her bank account to save for a bicycle. After making the deposit, she had $\frac{2}{5}$ of her allowance left. At the end of the week, she still had $\frac{1}{7}$ of her allowance left. What fraction of her allowance did she spend during the week?

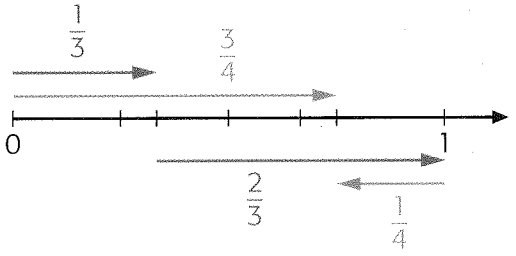
6. A Chinese restaurant makes $\frac{1}{3}$ of its income on Friday and Saturday nights and $\frac{2}{5}$ from lunches during the work week. What fraction of its income is from other meals?

7. Roll a pair of dice twice. Use the numbers you roll to create two fractions.

a) Can you roll numbers so that the sum of the two fractions is $\frac{5}{6}$? Explain.

b) Can you roll numbers so that the difference is $\frac{5}{6}$? Explain.

8. Jarod calculated $\frac{3}{4} - \frac{1}{3}$ using the number line below. How does this number line show that his answer is the same as the answer for $\frac{2}{3} - \frac{1}{4}$?



9. In this chapter, you have added and subtracted fractions with fraction strips, a grid and counters, and a number line. Which method do you prefer? Why?

A Checking

1. Calculate.

a) $\frac{3}{5} - \frac{1}{5}$ **b)** $\frac{3}{6} + \frac{2}{3}$ **c)** $\frac{7}{8} - \frac{3}{4}$ **d)** $\frac{2}{7} + \frac{2}{3}$

2. At a school party, $\frac{2}{3}$ of the students wore T-shirts and $\frac{1}{5}$ wore long-sleeved shirts. Which fraction is greater? By how much?

B Practising

3. Which of these expressions are equal to $\frac{1}{2}$?

A. $\frac{5}{12} - \frac{1}{3}$ **B.** $\frac{5}{12} + \frac{1}{3}$ **C.** $\frac{3}{7} + \frac{1}{14}$ **D.** $\frac{3}{5} - \frac{1}{10}$

4. In a Grade 7 class, $\frac{1}{5}$ of the students have two pets and $\frac{1}{20}$ have three or more pets.

a) Estimate the fraction of the class with two or more pets.

b) How many students do you think are in the class? Explain.

5. Complete this equation: $\frac{2}{3} + \frac{3}{5} + \frac{\quad}{15} = \frac{\quad}{15}$.

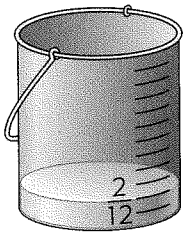
6. Which of these expressions are greater than 1? How do you know?

A. $\frac{2}{3} + \frac{1}{6}$ **B.** $\frac{1}{2} + \frac{3}{5}$ **C.** $\frac{3}{2} - \frac{3}{7}$ **D.** $2 - \frac{3}{4}$

7. Four students added $\frac{3}{4} + \frac{5}{6}$ and got these answers: $\frac{38}{24}$, $1\frac{14}{24}$, $1\frac{7}{12}$, and $\frac{19}{12}$. Are they all correct? How do you know?

8. Calculate using equivalent fractions.

a) $\frac{2}{3} + \frac{3}{7}$ **b)** $\frac{3}{5} + \frac{4}{7}$ **c)** $\frac{3}{4} + \frac{7}{9}$ **d)** $\frac{3}{4} - \frac{1}{3}$



9. Kristen poured water into this pail until it was $\frac{3}{4}$ full. How much water did she add?

10. Two fractions add to $\frac{1}{4}$. Is each statement true or false? Explain.

A. Both fractions are less than $\frac{1}{8}$.

B. One fraction might be $\frac{1}{5}$.

C. One fraction might be $\frac{2}{5}$.

D. The denominators might be 10 and 20.