

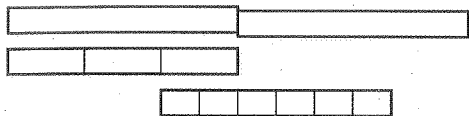
WORK WITH the Math

Example 3 Adding using models

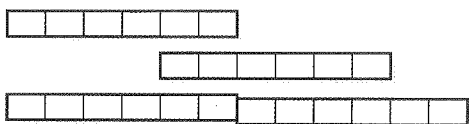
Estimate and then add $\frac{2}{3} + \frac{5}{6}$.

Solution

2 whole fraction strips:



$$\frac{2}{3} + \frac{5}{6} > 1 \quad \frac{2}{3} + \frac{5}{6} < 2$$



$$\frac{4}{6} + \frac{5}{6} = \frac{9}{6}$$

$$\frac{9}{6} = 1\frac{3}{6}$$

$$\frac{2}{3} + \frac{5}{6} = 1\frac{3}{6}$$

Estimate: The answer is more than 1, since the shaded part is more than 1 whole strip. The shaded part is less than 2 whole strips, however. It's about $1\frac{1}{2}$.

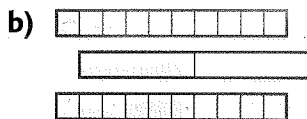
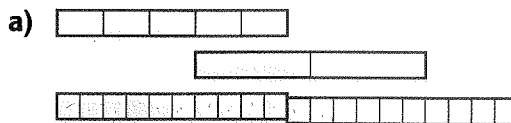
To add $\frac{2}{3}$ and $\frac{5}{6}$, use strips with a common denominator of 6.

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

Since $\frac{3}{6} = \frac{1}{2}$, $1\frac{1}{2}$ was a good estimate for $\frac{2}{3} + \frac{5}{6}$.

A Checking

1. Write the addition that each model represents.



2. a) How do you know that $\frac{3}{4} + \frac{1}{6} < 1$?
 b) Calculate $\frac{3}{4} + \frac{1}{6}$ using fraction strips. Show your work.

B Practising

3. Estimate. Show your work.

a) $\frac{2}{3} + \frac{1}{10}$ b) $\frac{1}{4} + \frac{9}{10}$ c) $\frac{2}{3} + \frac{1}{2}$ d) $\frac{5}{6} + \frac{3}{4}$

4. Calculate.

a) $\frac{3}{5} + \frac{1}{5}$ c) $\frac{1}{6} + \frac{1}{4}$ e) $\frac{5}{6} + \frac{1}{3}$
 b) $\frac{2}{3} + \frac{2}{3}$ d) $\frac{1}{3} + \frac{7}{12}$ f) $\frac{5}{6} + \frac{1}{4}$

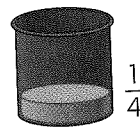
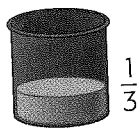
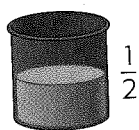
5. Yesterday, Jacques read $\frac{1}{3}$ of the novel *Les beaux jours*. Today, he read $\frac{1}{6}$ of the novel. Use a fraction to describe how much of the novel Jacques has read so far.

6. Francis added fractions with different denominators using fraction strips. His total was one whole strip. List six pairs of fractions he might have been adding.

7. Abby watched one television program for $\frac{1}{4}$ of an hour and then watched another program for 20 min. For what fraction of an hour did Abby watch television?

8. A fraction with a denominator of 4 is added to a fraction with a denominator of 6. What denominator might the answer have? Explain.

9. Yan poured sand into three identical pails. Will all the sand fit in one of these pails? Explain.



10. When you add any two counting numbers (such as 1, 2, 3, ...), the answer is always greater than either number. Is the same true when you add any two fractions? Explain.

11. Why is it quicker to add $\frac{5}{12}$ and $\frac{11}{12}$ than to add $\frac{5}{12}$ and $\frac{3}{4}$?

