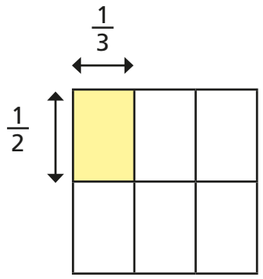
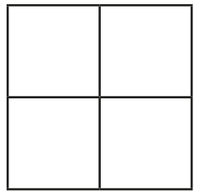
Find the product of a pair of unit fractions

1 **a)** How does this diagram represent $\frac{1}{3} \times \frac{1}{2} = \frac{1}{6}$?



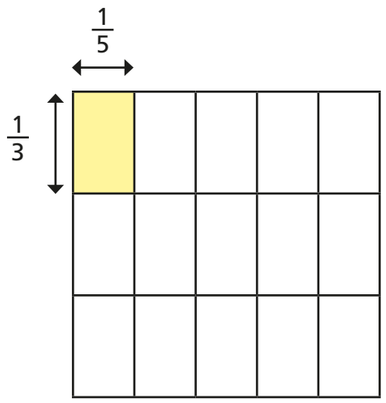
Discuss it with a partner.

b) Use the diagram to represent $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$



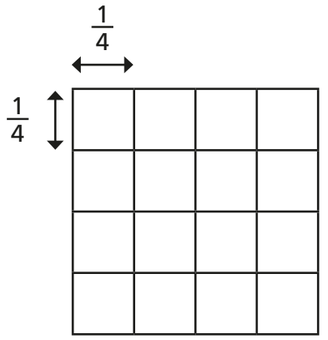
2 Complete the calculations represented by the diagrams.

a)



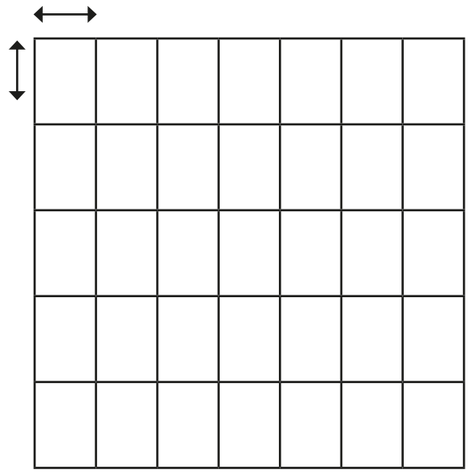
$\frac{1}{5} \times \frac{1}{3} =$ ☐

b)



☐ × ☐ = ☐

c)



☐ × ☐ = ☐

3 Match the calculations to the correct answers.

$\frac{1}{6} \times \frac{1}{5}$	$\frac{1}{14}$
$\frac{1}{4} \times \frac{1}{3}$	$\frac{1}{12}$
$\frac{1}{7} \times \frac{1}{2}$	$\frac{1}{20}$
$\frac{1}{5} \times \frac{1}{4}$	$\frac{1}{30}$

4 Complete the calculations.

a) $\frac{1}{4} \times \frac{1}{2} = \square$

b) $\frac{1}{3} \times \frac{1}{7} = \square$

c) $\frac{1}{8} \times \frac{1}{5} = \square$

d) $\frac{1}{6} \times \frac{1}{7} = \square$

e) $\left(\frac{1}{4}\right)^2 = \frac{1}{4} \times \frac{1}{4} = \square$

f) $\left(\frac{1}{5}\right)^2 = \square \times \square = \square$

g) $0.1^2 = \square \times \square = \square$

h) $\frac{1}{2} \times \frac{1}{\square} = \frac{1}{10}$

i) $\frac{1}{\square} \times \frac{1}{6} = \frac{1}{12}$

j) $\frac{1}{\square} \times 0.1 = \frac{1}{40}$

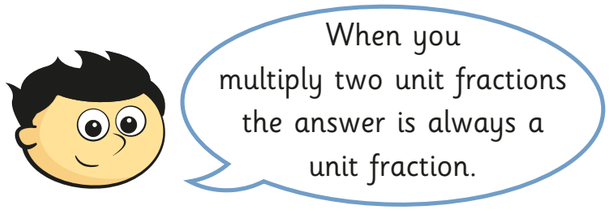
5 Complete the multiplications.

a) $\frac{1}{\square} \times \frac{1}{\square} = \frac{1}{24}$ **b)** $\frac{1}{\square} \times \frac{1}{\square} = \frac{1}{36}$ **c)** $\frac{1}{\square} \times \frac{1}{\square} = \frac{1}{40}$

Are there other ways to complete these multiplications?

Which calculation has the most options? Why?

6



Is Jack correct? _____

Explain your answer.

_____

_____

7 **a)** A school's lunchtime lasts for half an hour.

Huan spends one-third of lunchtime in the library.

What fraction of an hour does Huan spend in the library?

b) A running track is $\frac{1}{4}$ km long.

Esther runs exactly half the length of the running track.

What fraction of a kilometre does Esther run?

Brett runs on the same running track, but only runs for $\frac{1}{20}$ km altogether.

What fraction of the running track does Brett run?

8 **a)** Write 0.2 as a fraction in its simplest form.

b) Use your answer to part a) to work out 0.2^2, giving your answer as a fraction.

c) Calculate 0.5^2, giving your answer as a fraction.