

RECALL

$$\frac{1}{2} \times \square = \frac{5}{2} =$$

$$\frac{2}{3} \times \square = \frac{6}{3} =$$

$$\frac{3}{4} \times \square = \frac{15}{4} =$$

$$\frac{3}{5} \times \square = \frac{12}{5} =$$

$$\frac{3}{4} \times \square = 6$$

$$\frac{5}{6} \times \square = \frac{10}{3} =$$

$$\frac{1}{2} \times \boxed{5} = \frac{5}{2} =$$

$$\frac{3}{5} \times \boxed{4} = \frac{12}{5} =$$

$$\frac{2}{3} \times \boxed{3} = \frac{6}{3} =$$

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

$$\frac{3}{4} \times \boxed{5} = \frac{15}{4} =$$

$$\frac{5}{6} \times \boxed{4} = \frac{10}{3} =$$

answers

L.O. -MULTIPLY SIMPLE PAIRS OF PROPER FRACTIONS AND WRITE THE ANSWER IN ITS SIMPLEST FORM

- Some will even: Generate rules to multiply fractions by fractions
- Some will be: Notice what is happening to the numerator and denominator in relation to the diagrams
- Most will: Simplify their answers
- All will: Draw grids to represent multiplying fractions

GUIDED PRACTICE – MY TURN



Bella and Amal are making flapjacks.

a) They have $\frac{1}{2}$ a bag of oats. They need to use $\frac{1}{2}$ of the oats in the bag.

What fraction of a whole bag do they need to use?

b) They have $\frac{3}{4}$ of a block of butter. They need $\frac{1}{2}$ of this to make the flapjack.

What fraction of a whole block of butter do they need to use?

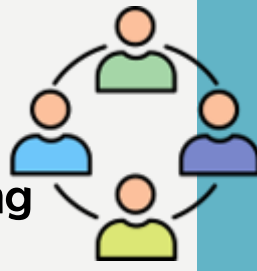
help

Use a diagram or grid to help you.



Can you show me as many ways as you can to work out your answers?

GUIDED PRACTICE – OUR TURN



Bella and Amal are making flapjacks.

a) They have $\frac{1}{2}$ a bag of oats.
They need to use $\frac{1}{2}$ of the oats
in the bag.

What fraction of a whole bag
do they need to use?

b) They have $\frac{3}{4}$ of a block of
butter.
They need $\frac{1}{2}$ of this to make
the flapjack.

What fraction of a whole block
of butter do they need to use?

help

Use a diagram or grid to help you.



Can you show me as many ways as you can to work
out your answers?

$\frac{1}{2}$

$\frac{1}{2}$

$\frac{1}{2}$



$\frac{1}{2}$

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

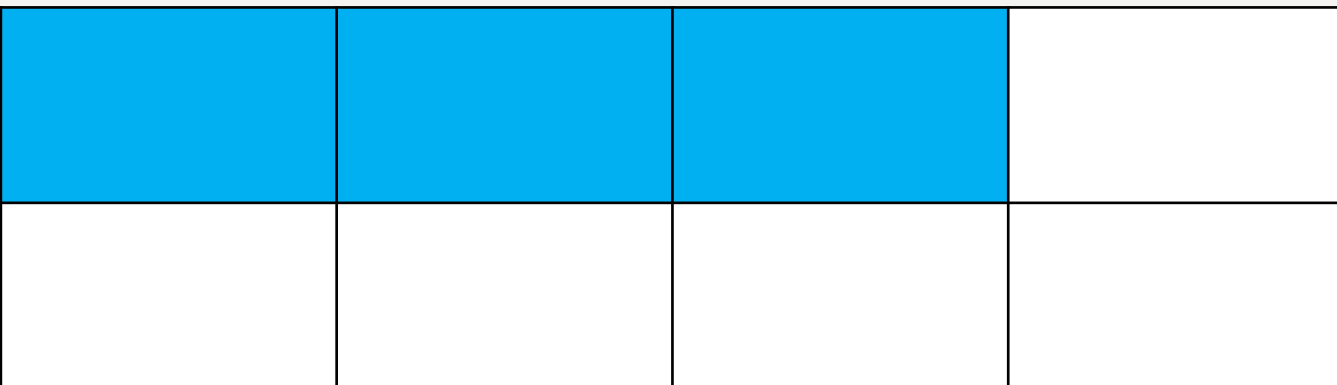
$\frac{1}{4}$

$\frac{1}{4}$

$\frac{1}{4}$

$\frac{1}{4}$

$\frac{1}{2}$



$\frac{1}{2}$

$$\frac{3}{4} \times \frac{1}{2} = \frac{3}{8}$$

GUIDED PRACTICE – YOUR TURN



Bella and Amal are making flapjacks.

a) They have $\frac{1}{4}$ a bag of oats.
They need to use $\frac{1}{2}$ of the oats
in the bag.

What fraction of a whole bag
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b) They have $\frac{3}{4}$ of a block of
butter.
They need $\frac{1}{4}$ of this to make
the flapjack.

What fraction of a whole block
of butter do they need to use?

help

Use a diagram or grid to help you.

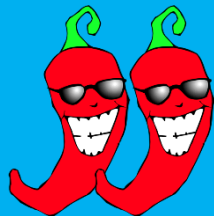
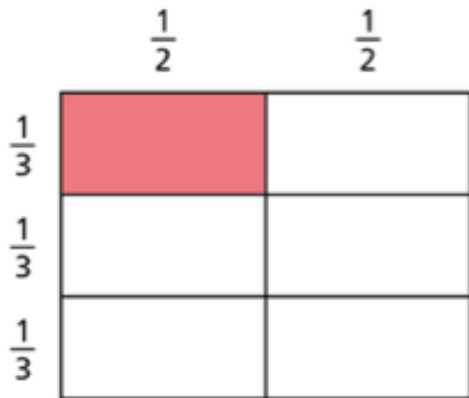


Can you show me as many ways as you can to work
out your answers?

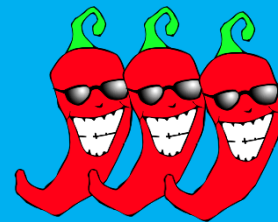
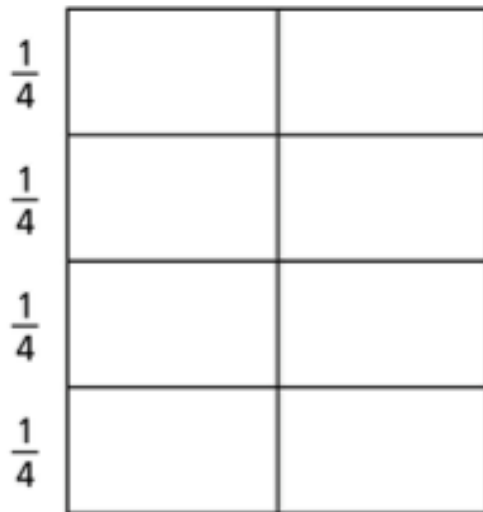
Intelligent Practice



$$\frac{1}{2} \times \frac{1}{3} =$$



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

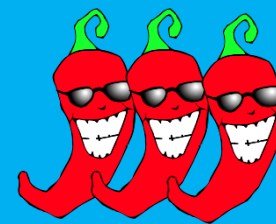
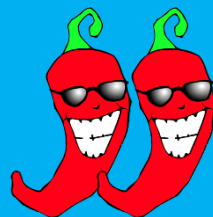


$$\frac{2}{3} \times \frac{3}{4} =$$

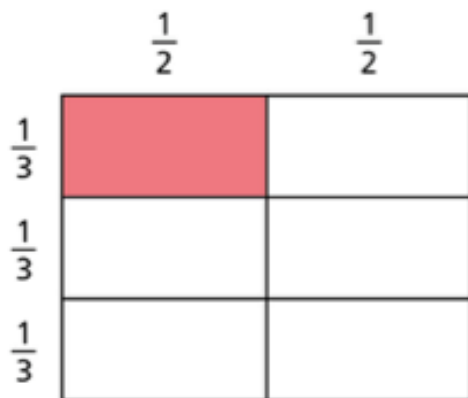


Mo says $\frac{2}{3} \times \frac{3}{4}$ is equal to $\frac{1}{2}$
Is Mo correct?
Explain your answer.

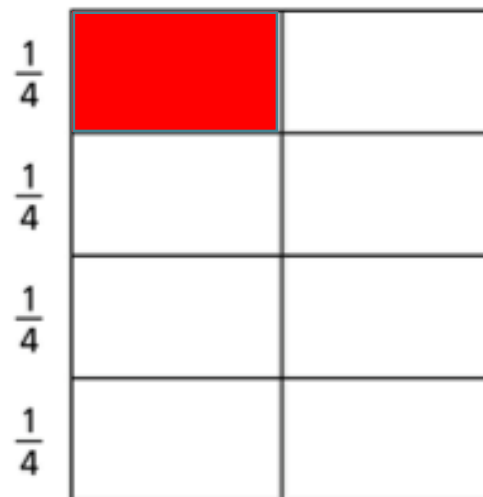
Intelligent Practice



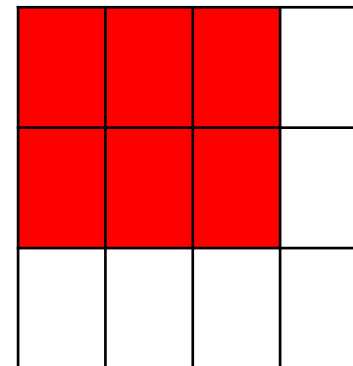
$$\frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$$



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

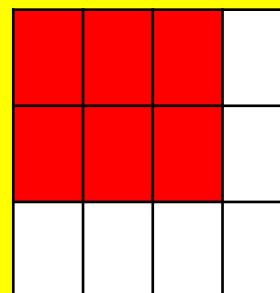


$$\frac{2}{3} \times \frac{3}{4} = \frac{6}{12}$$

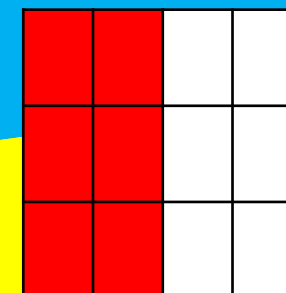


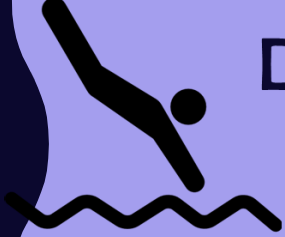
Mo says $\frac{2}{3} \times \frac{3}{4}$ is equal to $\frac{1}{2}$
Is Mo correct?

He is correct. See example



=





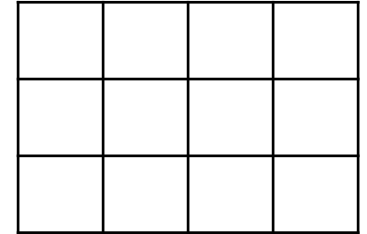
DIVE DEEPER 1

1. The brownies take $\frac{2}{3}$ of an hour to cook.

Amal is going to check on them when they have been cooking

For $\frac{3}{4}$ of the time needed.

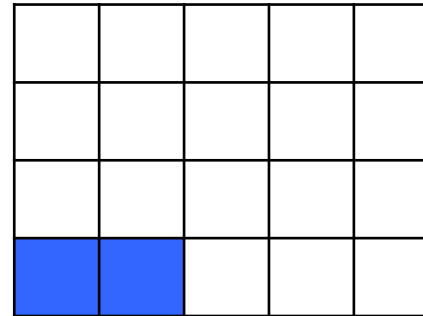
What fraction of the hour will have passed when Amal checks on the brownies?



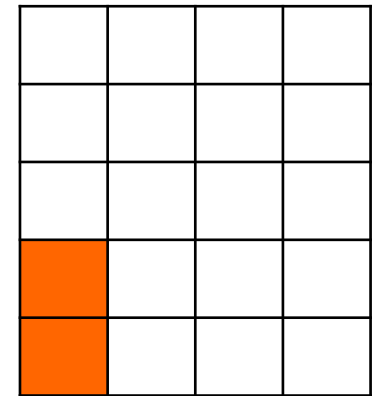
2. Amelia and Richard are working out $\frac{1}{4} \times \frac{2}{5}$.

Which diagram is correct?

Richard



Amelia

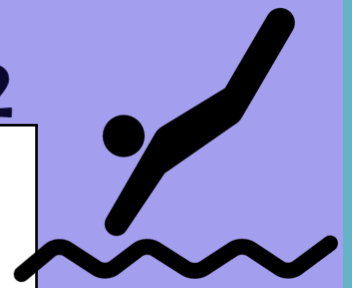


3. Use diagrams to work out these calculations.

$$\frac{1}{3} \times \frac{3}{4} =$$

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

DIVE DEEPER 2



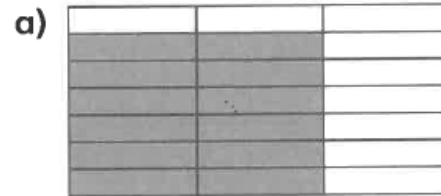
4. Use the diagrams to complete the calculations

a) $\frac{1}{3}$ of $\frac{1}{4}$ = 

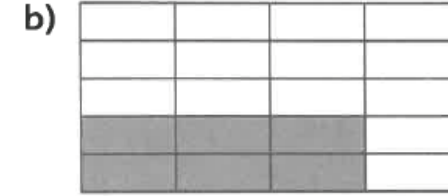
b) $\frac{2}{3}$ of $\frac{3}{4}$ = 

What do you notice about your answers?

5. These diagrams show the result of two fractions being multiplied together.



$$\frac{\boxed{}}{\boxed{}} \times \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}}$$



$$\frac{\boxed{}}{\boxed{}} \times \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}}$$

What could the questions have been?

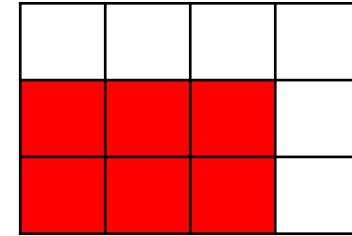
6. Is this statement always true, sometimes true or never true?
Explain your answer.

‘When you multiply a proper fractions by another proper fraction, the answer will always be smaller than the two original fractions.’



1. The brownies take $\frac{2}{3}$ of an hour to cook.
Amal is going to check on them when they have been cooking for $\frac{3}{4}$ of the time needed.

What fraction of the hour will have passed when Amal checks on the brownies?
 $\frac{3}{4} \times \frac{2}{3} = \frac{6}{12} = \frac{1}{2}$



2. Amelia and Richard are working out $\frac{1}{4} \times \frac{2}{5}$.

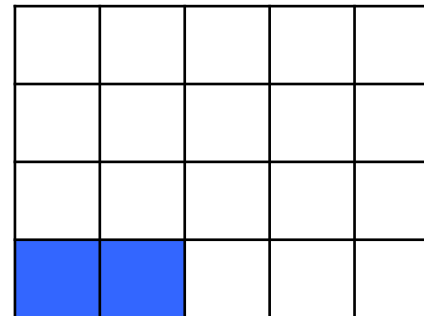
Which diagram is correct?

Both diagrams are correct.

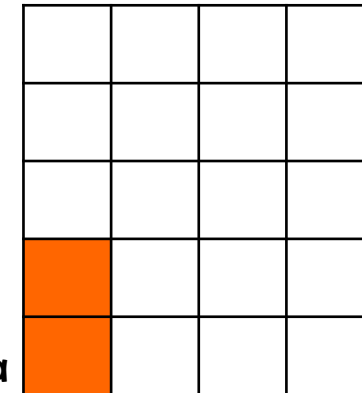
Richard's shows $\frac{2}{5} \times \frac{1}{4}$ and

Amelia's shows $\frac{1}{4} \times \frac{2}{5}$.

Richard

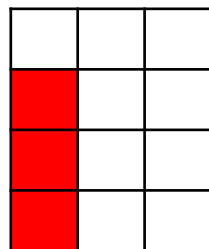


Amelia

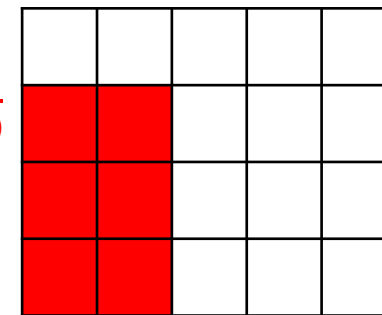


3. Use diagrams to work out these calculations.

$$\frac{1}{3} \times \frac{3}{4} = \frac{3}{12} = \frac{1}{4}$$



$$\frac{2}{5} \times \frac{3}{4} = \frac{6}{20} = \frac{3}{10}$$



4. Use the diagrams to complete the calculations

a) $\frac{1}{3}$ of $\frac{1}{4}$ = $\frac{1}{12}$



b) $\frac{2}{3}$ of $\frac{3}{4}$ = $\frac{6}{12}$

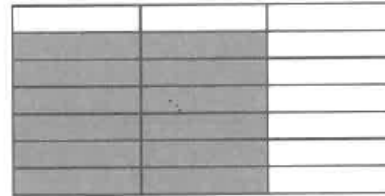


What do you notice about your answers?

5. These diagrams show the result of two fractions being multiplied together.

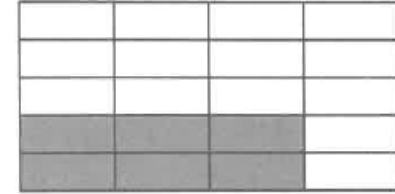
What could the questions have been?

a)



$$\frac{2}{3} \times \frac{4}{6} = \frac{8}{18}$$

b)



$$\frac{1}{2} \times \frac{2}{3} = \frac{2}{6}$$

6. Is this statement always true, sometimes true or never true?

'When you multiply a proper fractions by another proper fraction, the answer will always be smaller than the two original fractions.'

True because you are taking a part of a part, therefore it could never be bigger than either part.



INSTRUCTIONS

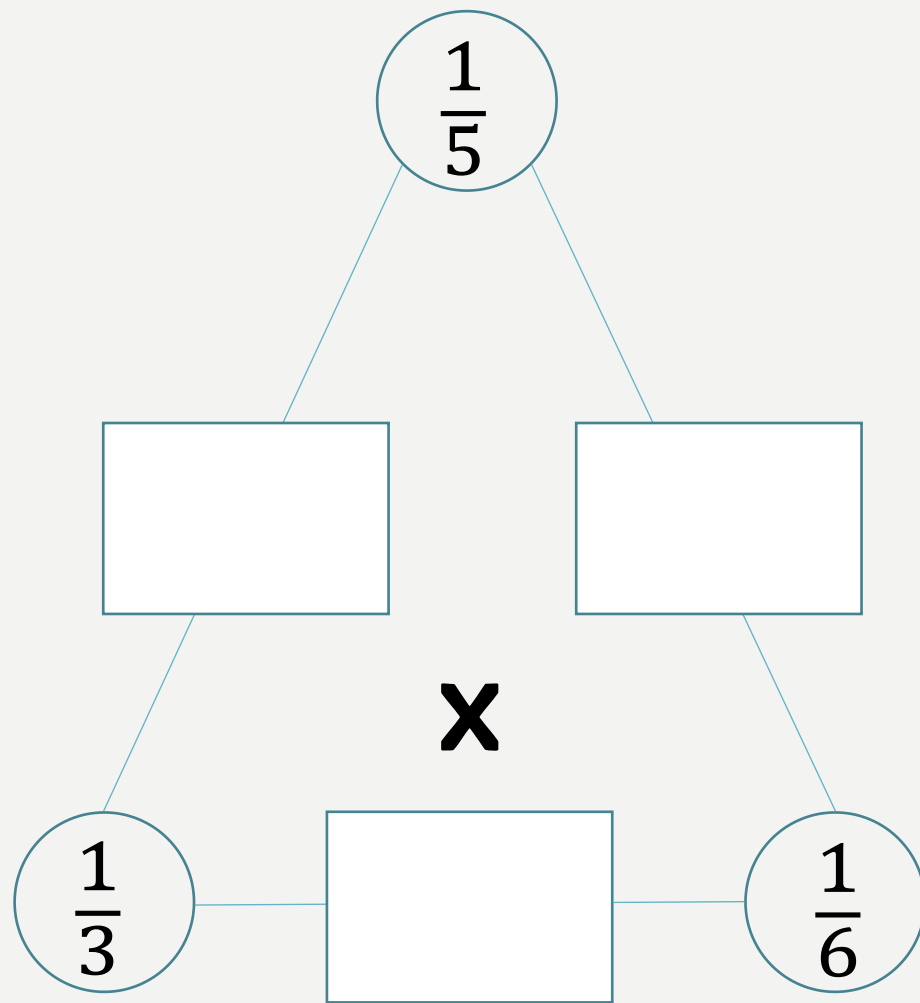
Forwards Arithmagon

- Choose two circles
- Multiply the two fractions in the circles together and fill your answer in the rectangle in between them. Simplify your answer where possible.
- Continue until you have filled in the other two rectangles

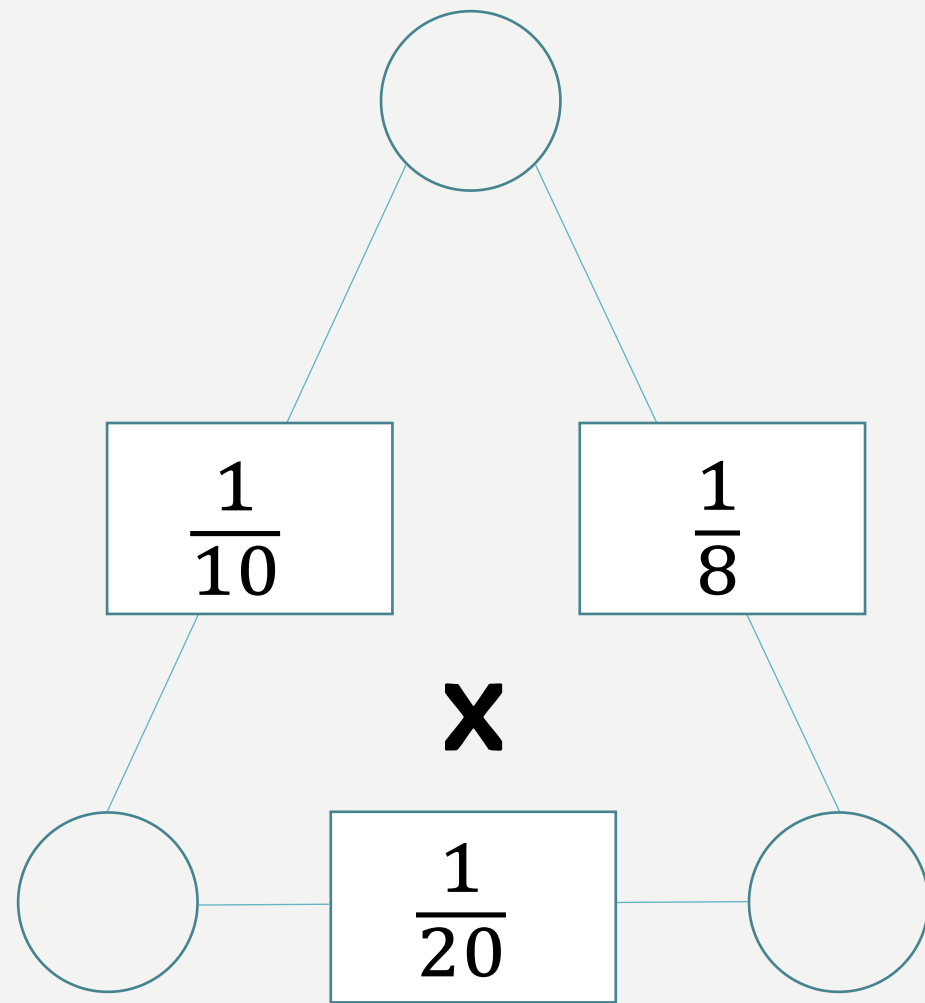
Backwards Arithmagon

- Place a fraction in each circle so that each pair of circles multiplies to give the number in the rectangle in between them.
- Be prepared to describe your strategy!

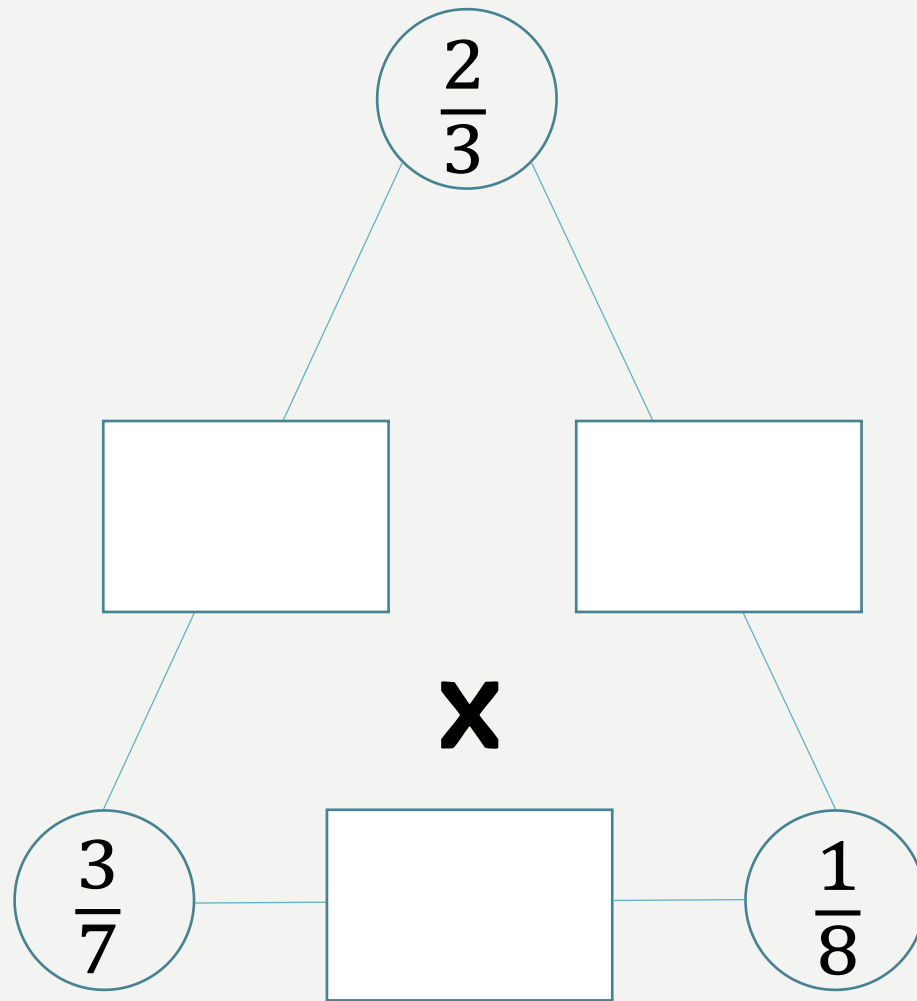
Forwards



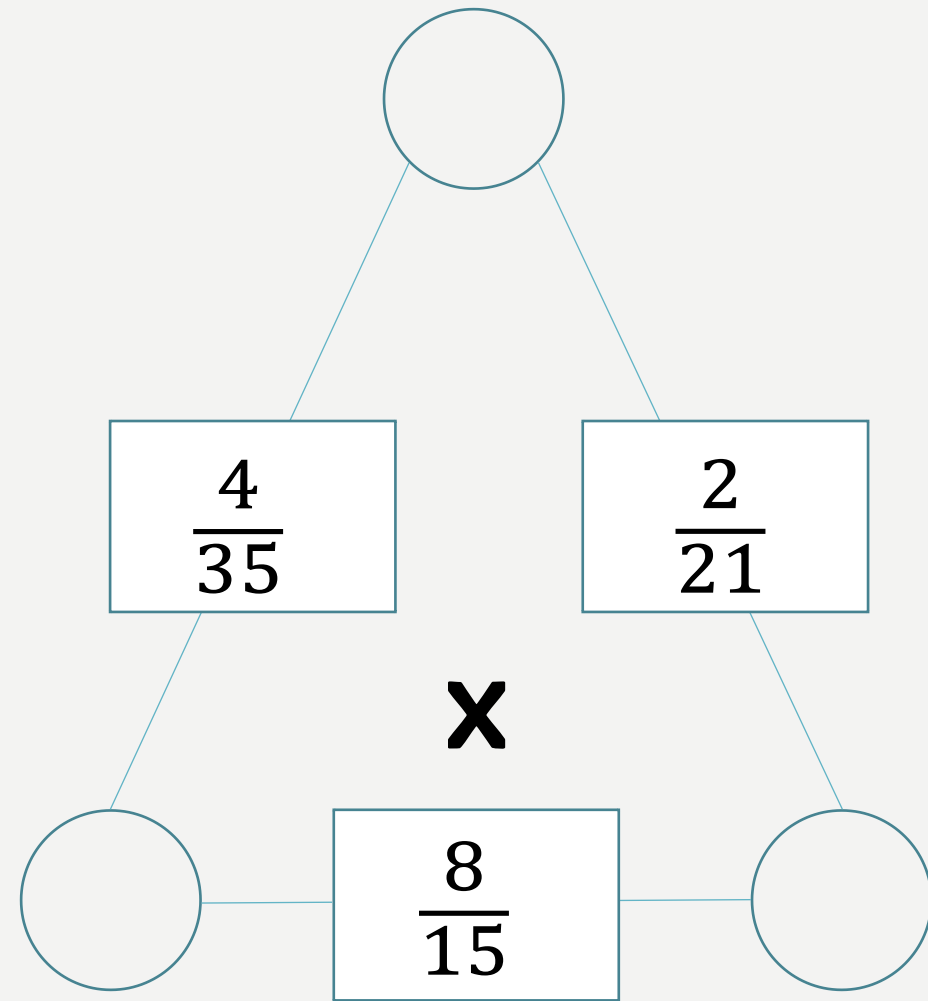
Backwards



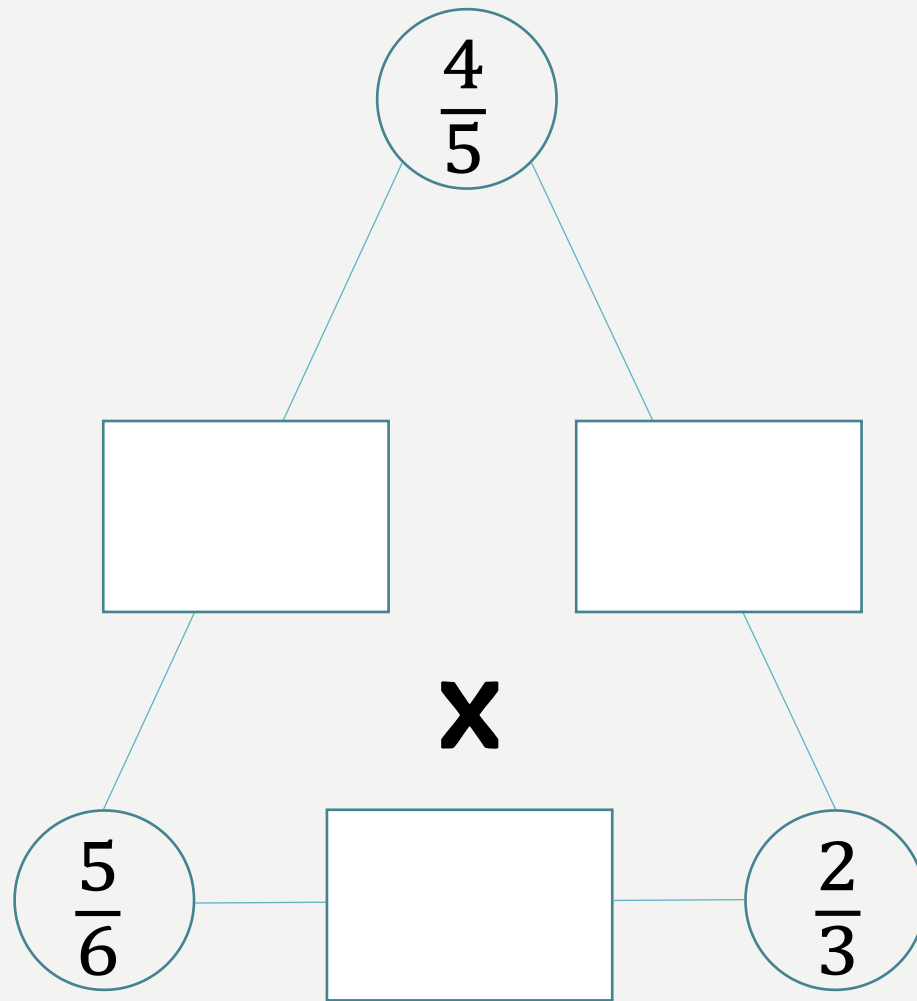
Forwards



Backwards



Forwards



Backwards

