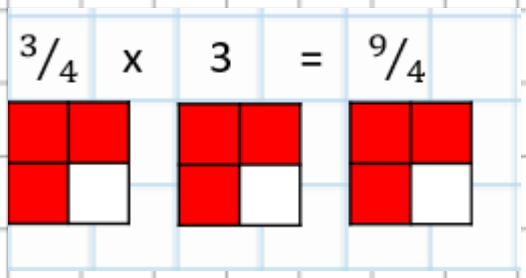
Can I multiply fractions by whole numbers?

THIS IS NEW LEARNING – we haven't covered this yet in year 5 but don't worry: here is a step by step guide!!

Multiplication is just repeated addition so multiplying just means doing the same thing a certain number of times. This is good multiplication tables practice too!

Step 1 – drawing diagrams to help you

If I have $^{3}/_{4}$ and multiply it by 3, that means I need $^{3}/_{4}$, 3 times.



Draw cakes, pizzas, chocolate bars or just simple shapes like the ones shown to help you – count the total coloured squares to help you work out the numerator for your answer. The denominator will stay the same.

Step 2 – calculating the answer without diagrams

Multiply the numerator by the whole number:

$^{3}/_{4}$ X 3 3 x 3 = 9

so the answer to this question has a numerator of 9 – we then put this over the denominator from the question:

$^{9}/_{4}$

Step 3

Convert the improper fraction into a mixed number where necessary by using your denominator to help you work out how many wholes you have:

9 (numerator) ÷ 4 (denominator) = 2 r 1

Remember, the remainder gives you the numerator for the fraction part of your mixed number

… so our answer is $2\,^{1}/_{4}$

We went over converting between improper fractions and mixed numbers in the home learning before half term if you need a quick recap, the sheets will be on the school website under home learning 18 May 2020.

Another example:

$^{2}/_{5}$ x 6

1) Multiply numerator by whole number: 2 x 6 = 12 this gives your new numerator $^{12}/_{5}$
2) Convert your improper fraction to a mixed number: 12 ÷ 5 = 2 r 2
3) Give your answer as a mixed number: $2\,^{2}/_{5}$

Question	Working out	Answer as a mixed number
$^1/_7$ x 5	1 x 5 = 5 so $^5/_7$	$^5/_7$
$^2/_{10}$ x 9		
$^5/_7$ x 3		
$^5/_8$ x 2		
$^7/_{12}$ x 8		
$^4/_5$ x 4		
$^9/_{11}$ x 7		
$^6/_7$ x 12		
$^1/_2$ x 5		
$^3/_8$ x 7		
$^8/_9$ x 4		

Answers

Question	Working out	Answer as a mixed number
$^1/_7$ x 5	1 x 5 = 5 so $^5/_7$	$^5/_7$
$^2/_{10}$ x 9	2 x 9 = 18 so 18/10	$1\ ^8/_{10}$ *or* $1\ ^4/_5$
$^5/_7$ x 3	5 x 3 = 15 so 15/7	$2\ ^1/_7$
$^5/_8$ x 2	5 x 2 = 10 so 10/8	$1\ ^2/_8$ *or* $1\ ^1/_4$
$^7/_{12}$ x 8	7 x 8 = 56 so 56/12	$4\ ^8/_{12}$ *or* $4\ ^2/_3$
$^4/_5$ x 4	4 x 4 = 16 so 16/5	$3\ ^1/_5$
$^9/_{11}$ x 7	9 x 7 = 63 so 63/11	$5\ ^8/_{11}$
$^6/_7$ x 12	6 x 12 = 72 so 72/7	$10\ ^2/_7$
$^1/_2$ x 5	1 x 5 = 5 so 5/2	$2\ ^1/_2$
$^3/_8$ x 7	3 x 7 = 21 so 21/8	$2\ ^5/_8$
$^8/_9$ x 4	8 x 4 = 32 so 32/9	$3\ ^5/_9$