

# MathShed

## Lesson 3: To be able to convert mixed numbers to improper fractions



1



Term: Spring

Unit: Block 2 – Fractions

Lesson: 3



Have a go at finishing these stem sentences based on your learning from yesterday.

A mixed number is ....

An improper fraction is ....





A mixed number is a number that has an integer and a fraction. An integer is a whole number.

An improper fraction is a fraction where the numerator is bigger than the denominator.



#### Starter:

Which one doesn't belong?







Explain your answer.

Click the link to hear me explaining the odd one out: <u>https://www.loom.com/share/9f801b244b294656a394f23b84a06602</u>

#### Starter:

Which one doesn't belong?



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The bar model representation doesn't belong as it shows  $2\frac{3}{5}$ , whereas the other representations show  $2\frac{2}{5}$  or  $\frac{12}{5}$ .

#### https://www.loom.com/share/3372efb132d64e8a898e448e46e296ff



#### Talking Time:

Yasmin converts the mixed number  $1\frac{1}{4}$  into an improper fraction using cubes.

1 whole is equal to \_ quarters

\_ quarters + \_ quarter = \_ quarters





#### https://www.loom.com/share/fbe5c4309de44b92b3a5684a8c 8c9f78



#### Talking Time:

Yasmin converts the mixed number  $2\frac{3}{4}$  into an improper fraction using cubes.

1 whole is equal to \_ quarters

wholes are equal to \_ quarters

\_ quarters + \_ quarters = \_ quarters







#### Talking Time:

Yasmin converts the mixed number  $2\frac{3}{4}$  into an improper fraction using cubes.

1 whole is equal to  $\underline{4}$  quarters

2 wholes are equal to 8 quarters

 $\underline{8}$  quarters +  $\underline{3}$  quarters =  $\underline{11}$  quarters



#### Have a go at this one on your own.

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Convert 3 <sup>1</sup>/<sub>4</sub> to an improper fraction.

1 whole is equal to \_ quarters

\_ wholes are equal to \_\_ quarters

\_ quarters + \_ quarters = \_ quarters



## Answers:



1 whole is equal to  $\underline{4}$  quarters

3 wholes are equal to 12 quarters

<u>12</u> quarters + <u>1</u> quarters = <u>13</u> quarters

$$3\frac{1}{4} = \frac{13}{4}$$
 quarters



### Now have a go at this one too.



• Conver the mixed number 1 4/5 to an improper fraction.

1 whole is equal to \_ fifths

\_ wholes are equal to \_ fifths



#### Answers:

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1 whole is equal to 5 fifths

**<u>5</u>** fifths + **<u>4</u>** fifths = **<u>9</u>** fifths



$$1\frac{4}{5} = 9$$
 fifths

Solve each of the following questions. You will find it easier if you draw out the model for each question. Remember, the denominator tells us how many there are in a whole one.



1 whole is equal to 4 quarters

<u>3</u> wholes are equal to <u>12</u> quarters

<u>12</u> quarters + <u>1</u> quarters = <u>13</u> quarters

$$3\frac{1}{4} = \frac{13}{4}$$
 quarters









These diagrams aren't drawn as bar models but they can represent the same information.

Uses the diagrams below to convert mixed numbers into improper fractions.

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

$$4\frac{7}{9} =$$







Uses the diagrams below to convert mixed numbers into improper fractions.

a) 
$$3\frac{3}{4} = 15$$
 quarters



b) 
$$4\frac{7}{9} = 43$$
 ninths



Click the link to watch me demonstrate the first one. <u>https://www.loom.com/share/5ab02b908a9140f28732827d6</u> <u>4d3ba7e</u>



#### Talking Time:

Use multiplication to convert the following mixed numbers to improper fractions.

 $\frac{-}{2}$  is equal to 5 a) b) is equal to 5 — C) 5 – is equal to d) is equal to 5

$$5\frac{3}{10}$$
 is equal to  $\frac{53}{10}$ 

$$5\frac{7}{8}$$
 is equal to  $\frac{47}{8}$ 

$$5\frac{1}{3}$$
 is equal to  $\frac{16}{3}$ 

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

$$5 \times 2 = 10$$

$$\frac{10}{2} + \frac{1}{2} = \frac{11}{2}$$

$$5\frac{1}{3} =$$

$$5 \times 3 = 15$$

$$\frac{15}{3} + \frac{1}{3} = \frac{16}{3}$$



$$5\frac{1}{2}$$
 is equal to  $\frac{11}{2}$ 

$$5\frac{1}{2}$$
 is equal to  $\frac{11}{2}$ 

Answers:

$$\frac{1}{2}$$
 is equal to  $\frac{11}{2}$ 

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#### Have a go at solving these.

Work each one out for yourself on paper before explaining the error.

## What went wrong? A $4\frac{5}{6} = \frac{20}{24}$ $4\frac{5}{6} = \frac{24}{6}$ $4\frac{5}{6} = \frac{24}{6}$ $4\frac{5}{6} = \frac{45}{6}$ $4\frac{5}{6} = \frac{45}{6}$ $4\frac{5}{6} = \frac{30}{6}$

Explain the error made in each of the number sentences above.





- A has multiplied the numerator and denominator by the integer. They only needed to multiply the denominator by the integer.
- B has multiplied the denominator by the integer to make the new numerator but hasn't added on the other 5 sixths.
- C has multiplied the integer by 10 instead of 6.
- D has multiplied the numerator by the denominator to make the new numerator.

Mrs Q's group, have a go at explaining this in full sentences using the correct mathematical vocabulary.

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Is Astrobee's statement always, sometimes or never true? Explain your answer.



Astrobee's statement is only sometimes true. For example, 3  $\frac{3}{4}$  has a greater numerator as an improper fraction (15 quarters) than 2  $\frac{1}{2}$  (5 halves); however, two and eleven twelfths has a greater numerator as an improper fraction (35 twelfths) than four and one sixth has as its numerator as an improper fraction (25 sixths).