## * MathShed

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


Term: Spring

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

A mixed number is ....

An improper fraction is
....

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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.

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## Starter:

Which one doesn't belong?

$2 \frac{2}{5}$

Explain your answer.

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

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## Starter:

Which one doesn't belong?

$2 \frac{2}{5}$

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

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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


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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


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## Talking Time:

Yasmin converts the mixed number $2 \frac{3}{4}$ into an improper fraction using cubes.
1 whole is equal to 4 quarters
$\underline{2}$ wholes are equal to 8 quarters
$\underline{8}$ quarters $+\underline{3}$ quarters $=11$ quarters


Have a go at this one on your own.

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Convert $31 / 4$ to an improper fraction.

1 whole is equal to _ quarters
_ wholes are equal to _ quarters
_ quarters + _ quarters = _ quarters


Answers:

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1 whole is equal to 4 quarters

3 wholes are equal to 12 quarters
$\underline{12}$ quarters +1 quarters $=13$ quarters

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

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- Conver the mixed number $14 / 5$ to an improper fraction.

1 whole is equal to _ fifths
_ wholes are equal to _ fifths


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1 whole is equal to $\underline{5}$ fifths
$\underline{5}$ fifths $+\underline{4}$ fifths $=\underline{9}$ fifths

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



Solve each of the following questions. You will find it easier if youdraw out the modelfor eachquestion. Remember, the denominator tells us how many there are in a whole one.
a)

b)
1 whole is equal to $\underline{4}$ quarters
3 wholes are equal to 12 quarters
c)

$\underline{12}$ quarters + 1 quarters = 13 quarters

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

Answers:


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

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

b)

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



## MathShed

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

b)

$$
4 \frac{7}{9}=43 \text { ninths }
$$



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

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## Talking Time:

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

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

b)

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

c)

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

d)

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

$$
\begin{aligned}
& 5 \frac{1}{2} \text { is equal to } \frac{11}{2} \\
& \hline 5 \frac{1}{3} \text { is equal to } \frac{16}{3} \\
& \hline 5 \frac{7}{8} \text { is equal to } \frac{47}{8} \\
& \hline 5 \frac{3}{10} \text { is equal to } \frac{53}{10} \\
& \hline
\end{aligned}
$$

$$
\begin{aligned}
& 5 \frac{7}{8}= \\
& 5 \times 8=40 \\
& \frac{40}{8}+\frac{7}{8}=\frac{47}{8} \\
& 5 \frac{3}{10}= \\
& 5 \times 10=50 \\
& \frac{50}{10}+\frac{3}{10}=\frac{53}{10}
\end{aligned}
$$

Work each one out for yourself on paper before explaining the

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 error.What went wrong?

$$
\begin{gathered}
\mathrm{A} \\
4 \frac{5}{6}=\frac{20}{24}
\end{gathered}
$$



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

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## A <br> $4 \frac{5}{6}=\frac{20}{24}$

## $4 \frac{5}{6}=\frac{24}{6}$



- 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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## Evaluation:

If a mixed number has a greater integer than another mixed number, it will have a greater numerator
as an improper fraction.

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

To be able to convert mixed numbers to improper fractions

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## Evaluation:

If a mixed number has a greater integer than another mixed number, it will have a greater numerator
as an improper fraction.

Astrobee's statement is only sometimes true. For example, $33 / 4$ has a greater numerator as an improper fraction ( 15 quarters) than $21 / 2$ ( 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).

