

# Lesson 5 Week 5

- Can I understand mixed fraction questions and word problems?

# Fast Five

$$3785 + 8765 =$$

What is  $\frac{27}{4}$  as a mixed number?

$$\frac{23}{5} + \frac{18}{5} =$$

$$2890 \div 1000 =$$

What is  $5 \frac{1}{2}$  as an improper fraction?

# Fast Five Answers

$$3785 + 8765 = 12550$$

$$2890 \div 1000 = 2.890$$

$$\frac{27}{4} \text{ as a mixed number} = 6 \frac{3}{4}$$

$$\frac{23}{5} + \frac{18}{5} = \frac{41}{5}$$

$$5 \frac{1}{2} \text{ as an improper fraction} = \frac{11}{2}$$

# Improper Fractions to Mixed Numbers (combination of a whole number and a fraction)

You can convert an improper fraction into a mixed number.

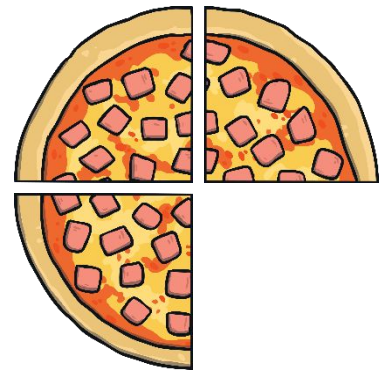
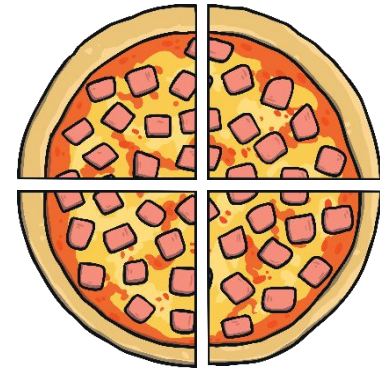
$$\frac{7}{4}$$

Divide the numerator  
(7) by the  
denominator (4).

$$7 \div 4 = 1 \text{ r}3$$

1 r3 written as a

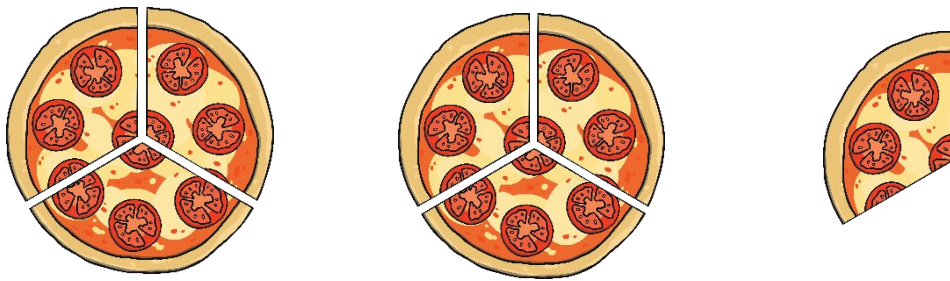
mixed number is  $1 \frac{3}{4}$



# Mixed Numbers to Improper Fractions

You can also convert a mixed number into an improper fraction.

First you need to multiply the **whole number** by the **denominator**.



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

$$2 \times 3 = 6$$

Then add the total to the numerator.  $6 + 1 = 7$

Then write the answer over the denominator.

$$\frac{7}{3}$$

# Adding and subtracting fractions with the same denominator

We can only add or subtract fractions if they have the same denominator. When they do, we just have to add or subtract the numerators.

$\frac{5}{8}$   
numerator  
denominator

$$\frac{5}{8} + \frac{1}{8} = \frac{5 + 1}{8} = \frac{6}{8}$$

$$\frac{5}{8} - \frac{1}{8} = \frac{5 - 1}{8} = \frac{4}{8}$$



# Adding fractions with different denominators

Multiply the numerator and denominator by 2.

$$\frac{1}{3} + \frac{3}{6}$$
$$\frac{2}{6} + \frac{3}{6}$$
$$\frac{2+3}{6} = \frac{5}{6}$$

We need to make their denominators the same. Fortunately, 6 is a multiple of 3.

To balance out our calculation with the same denominator, we can convert our thirds into sixths by multiplying 1 and 3 by 2, which is how many times 3 goes into 6.



# Solving Word Problems

- Read the **problem** carefully.
- Think about what it is asking us to do.
- Think about the information we need.
- Underline the key information.
- **Solve** it.
- Think about whether our **solution** makes sense (in order to check it).

# Solving word problems

Olivia went out for a walk. She walked  $\frac{1}{4}$  of a mile and then sat down to take a rest.

Then she walked  $\frac{1}{4}$  of a mile. How far did she walk altogether?

- **Step one** - the question is asking us how far she walked altogether, so we have to add the distances she has walked.
- **Step two** – add the two distances she walked
- $\frac{1}{4} + \frac{1}{4} = \frac{1+1}{4} = \frac{2}{4}$  *mile*

Juan, Shannon and Peter all have a pizza the same size. Juan eats  $\frac{4}{9}$  of his pizza, Shannon eats  $\frac{1}{3}$  of hers and Peter eats  $\frac{5}{18}$  of his pizza.



Who eats the largest amount of pizza?

**Step one** – We want to be able to compare which fraction is bigger than the others.

**Step two** – using our knowledge of equivalency can we identify a common denominator so we can compare them. In this case 18 is a common multiple of 3, 9 and 18, so we will convert all our fractions into eightheenths ( $\frac{?}{18}$ ).

**Step three** – convert our fractions

$$\text{Juan} = \frac{4}{9} = \frac{8}{18} \quad \text{Shannon} = \frac{1}{3} = \frac{6}{18} \quad \text{and} \quad \text{Peter} = \frac{5}{18}$$

**Step four** – Who has the largest fraction? Juan  $\frac{8}{18}$

$\frac{1}{10}$  of the coloured chocolates in a bag are red and  $\frac{1}{5}$  are blue. What fraction of the coloured chocolates are red and blue?

**Step one** – we are being asked to find the total of red and blue chocolates, so we have to add them together.

**Step two** – to add them they have to have a common denominator. In this case we can see that 10 is a common multiple of 5 and 10 and so we will need to convert them into tenths.

**Step three** - convert our fractions

$$\text{Blue} = \frac{1}{5} = \frac{2}{10} \quad \text{Red} = \frac{1}{10}$$

**Step four** – add them

$$\frac{2}{10} + \frac{1}{10} = \frac{3}{10}$$

There is  $\frac{7}{10}$  of a pizza in one box and  $\frac{2}{5}$  of a pizza in another box.

How much more is there in the first box compared to the second box?

**Step one** - We need to subtract the amount in the second box from the first box.

**Step two** – to find this out we have to give them the same denominator.

We can see that 10 is a common multiple of 5 and 10, so we will convert them into tenths ( $\frac{1}{10}$ ).

**Step three** – Convert them:

$\frac{7}{10}$  in the first box and  $\frac{2}{5} = \frac{4}{10}$  in the other.

**Step four** – subtract the amount in the second box from the first box

$$\frac{7}{10} - \frac{4}{10} = \frac{3}{10}$$

# Your turn

- $\frac{1}{3}$  of Beech Class have a dog,  $\frac{1}{6}$  have hamsters and  $\frac{2}{6}$  have cats. The remaining children do not have pets. What fraction of the class do not have pets?

1/3 of Beech Class have a dog, 1/6 have hamsters and 2/6 have cats. The remaining children do not have pets. What fraction of the class have pets?

- **Step one** – we need to add up the fraction of the class that have pets.
- **Step two** – to add fractions we need to have common denominators.
- **Step three** – we can see that 6 is a multiple of 3 and 6, so we will convert the fractions into sixths  $\left(\frac{1}{6}\right)$

- **Step four** – convert the fractions:

$$\text{Dog} = \frac{1}{3} = \frac{2}{6} \quad \text{Hamsters} = \frac{1}{6} \quad \text{Cats} = \frac{2}{6}$$

- **Step five** – add the fractions

$$\frac{2}{6} + \frac{1}{6} + \frac{2}{6} = \frac{5}{6}$$

# Your turn

$\frac{2}{5}$  of the cars in a car park are red and  $\frac{3}{10}$  are blue. What fraction of the cars are not red or blue?



$\frac{2}{5}$  of the cars in a car park are red and  $\frac{3}{10}$  are blue. What fraction of the cars are not red or blue?

- Step one – we need to find the total number of red and blue cars.
- Step two – we need to add the red and blue cars together but need a common multiple. We can see that 10 is a common multiple, so we will convert the fractions into tenths  $\left(\frac{1}{10}\right)$ .
- Step three – convert the fractions
- Red cars  $\frac{2}{5} = \frac{4}{10}$  Blue  $\frac{3}{10}$
- Step four – add the fractions  $\frac{4}{10} + \frac{3}{10} = \frac{7}{10}$  are red or blue.
- Step five - The fraction that are red or blue is  $\frac{7}{10}$  so the fraction that aren't red or blue is:
- $1 - \frac{7}{10} = \frac{3}{10}$