Elementary – Grade 4

2nd Edition

# NUMBERS

## Mathematics

## Workbook

A

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# Table of Contents

# Mad about Music

Theme 2

Tonight, the music festival opens with a show by Geobeat, a band that is very popular among young people. Many of the band's fans are lined up outside the hall, hoping to see the show.

# GOOD at ARITHMETIC?

Take the test.

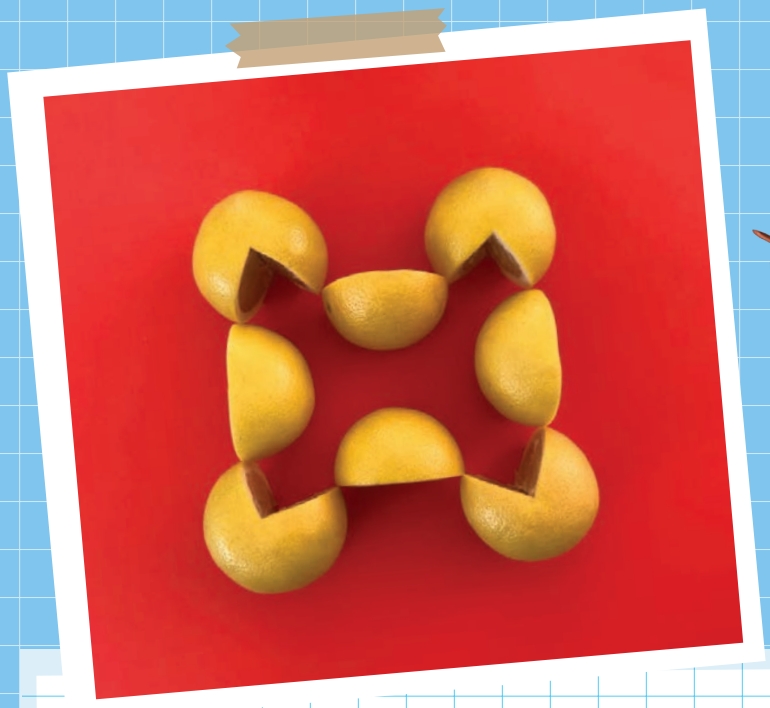
Is it true that the product of identical numbers can form a square?

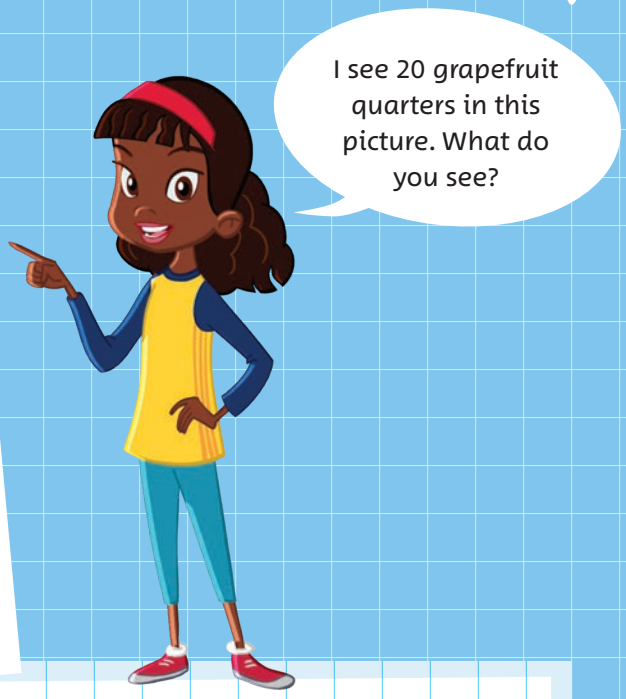
Section 13

## I Explore

► Observe ► Think ► Use tools ► Communicate

## Math Chat





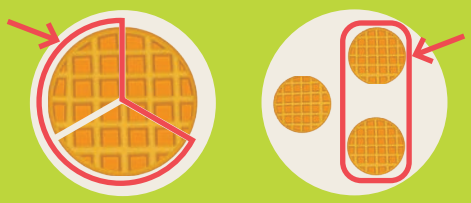

Can you use other fractions than quarters to describe what you see? Discuss the question with your classmates.

# I Learn Fractions

A **fraction** represents one or more **equivalent parts** of a **whole**. The whole can be a single object or a group of objects (a **collection**).

**Single whole** **Collection**

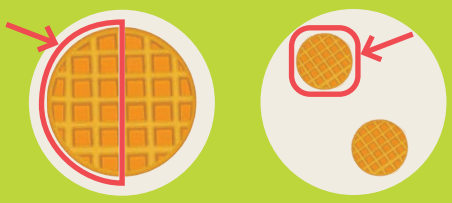
$\frac{2}{3}$



This fraction is called *two thirds*.

**Single whole** **Collection**

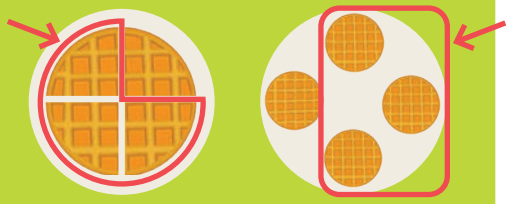
$\frac{1}{2}$



This fraction is called a *half*.

**Single whole** **Collection**

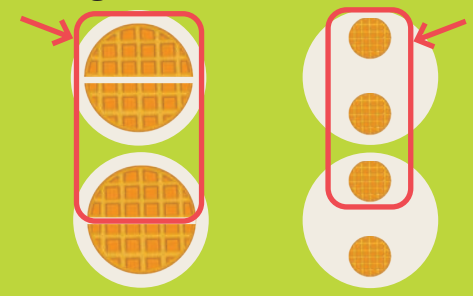
$\frac{3}{4}$



This fraction is called *three quarters*.

**Single whole** **Collection**

$1\frac{1}{2}$



In this case, you say "one and a half."

Remember: in a fraction, the whole is always divided into equivalent parts (equal parts).

A written fraction consists of a **numerator** and a **denominator**.

Numerator → 2 — Number of parts to consider

Denominator → 3 — Total number of equivalent parts in the whole. A fraction gets its name from the denominator.

# I Practise

**1** **Complete** the sentences.

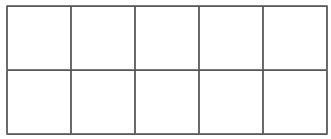
a) In the fraction $\frac{1}{2}$, the numerator is ☐ and the denominator is ☐.

b) In the fraction $\frac{3}{4}$, the numerator is ☐ and the denominator is ☐.

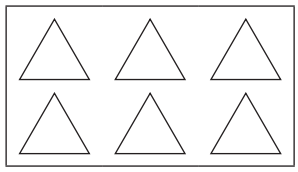
c) In the fraction ☐, the numerator is 5 and the denominator is 8.

**2** **Colour** each figure so that it represents the given fraction.

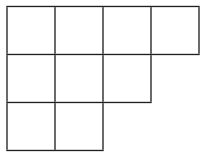
a) $\frac{3}{10}$



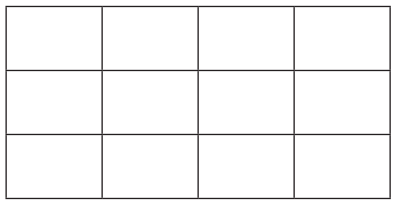
b) $\frac{1}{3}$



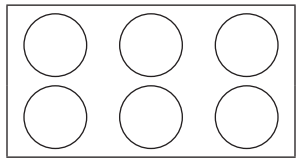
c) $\frac{4}{9}$



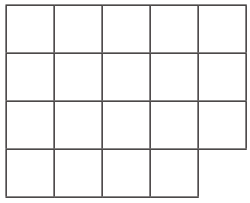
d) $\frac{3}{4}$



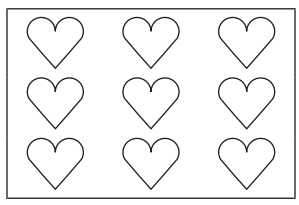
e) $\frac{4}{6}$



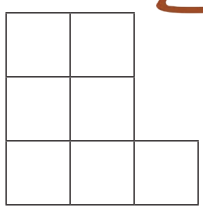
f) $\frac{17}{19}$

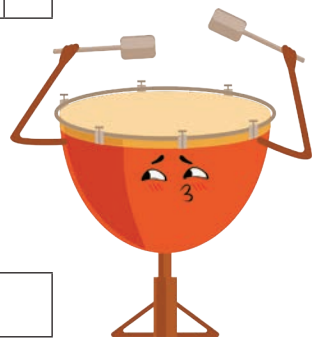


g) $\frac{7}{9}$

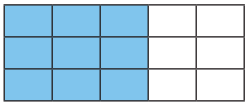


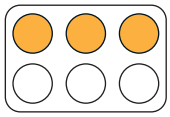
h) $\frac{3}{7}$

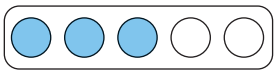


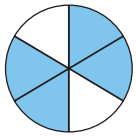


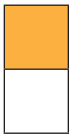
**3** **Match** the pictures that represent the same fraction.

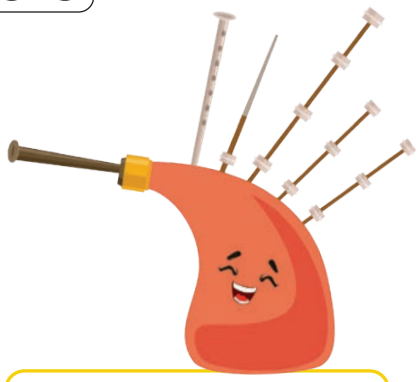
a) 

b) 



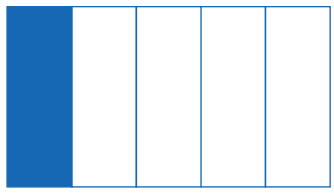
c) 





**4** **Represent** each fraction as part of a whole.

Example This part represents $\frac{1}{5}$ of the whole.



a) This part represents $\frac{1}{4}$ of the whole.

b) This part represents $\frac{1}{3}$ of the whole.

c) This part represents $\frac{2}{3}$ of the whole.

**5** **Answer** the questions. **Use** tokens to help you.

a) If  represent the whole, what fraction is represented by  ?

b) If  represent the whole, what represents $\frac{2}{5}$?

c) If  represent $\frac{1}{3}$ of the whole, what represents the whole?

d) If  represent the whole, what fraction is represented by  ?

**6** In a shop that sells musical instruments, there are guitars, saxophones and drums.

**Answer** the questions. **Use** tokens to help you.

a) What fraction of the collection of musical instruments consists of guitars?

b) What fraction of the collection of musical instruments consists of drums?

c) What fraction of the collection of musical instruments consists of saxophones?

**7** **Match** each fraction to its representation.

a) A half

b) Ten twelfths

c) Eight eighths

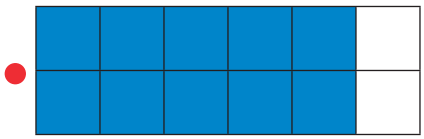
d) Two sixths

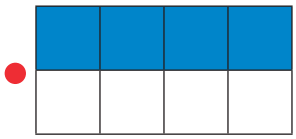
e) One and a third

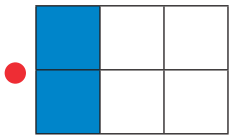
f) Three quarters

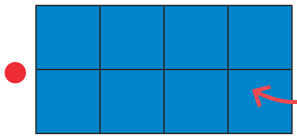
g) Four tenths

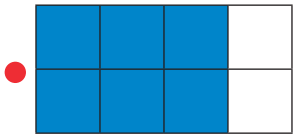
h) Four sixths

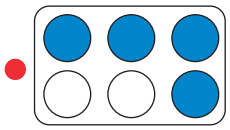


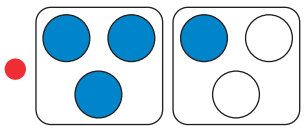


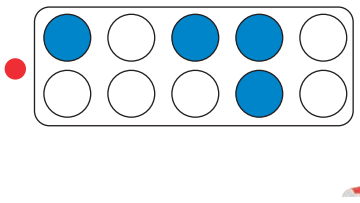






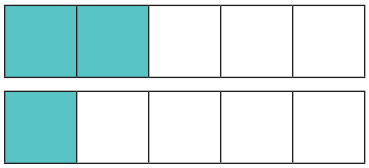


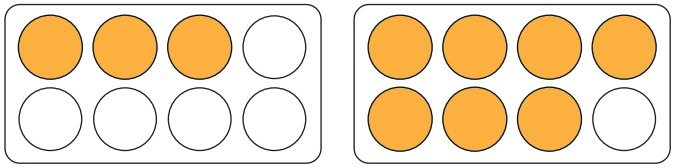


# I Learn Comparing Fractions

If the wholes are the same and **the fractions have the same denominator**, then all you have to do is compare the numerators.

For example:





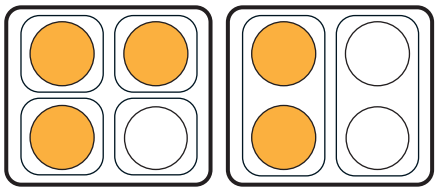
$\frac{2}{5} > \frac{1}{5}$ ← Same denominators

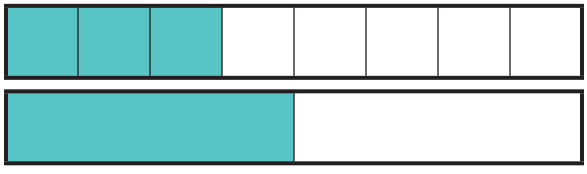
$\frac{3}{8} < \frac{7}{8}$ ← Same denominators

When 2 fractions have the same denominator, it means that their wholes are divided into the same number of parts.

If the wholes are the same but **the fractions have different denominators**, you can represent the fractions to compare them.

For example:



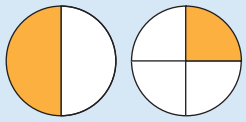
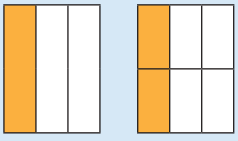
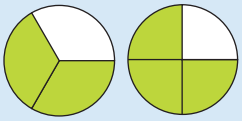


$\frac{3}{4} > \frac{1}{2}$ ← Different denominators

$\frac{3}{8} < \frac{1}{2}$ ← Different denominators

# I Practise

**1** **Fill in** the tables.

| | | Are the wholes the same? | | Can you compare these fractions? | | Compare the fractions if possible. |
|---|---|---|---|---|---|---|
| Example |  $\frac{1}{2}$ $\frac{1}{4}$ | Yes: X | No: | Yes: X | No: | $\frac{1}{2} > \frac{1}{4}$ |
| a) |  $\frac{1}{2}$ $\frac{1}{3}$ | Yes: | No: | Yes: | No: | |
| b) |  $\frac{1}{3}$ $\frac{2}{6}$ | Yes: | No: | Yes: | No: | |
| c) |  $\frac{2}{3}$ $\frac{3}{4}$ | Yes: | No: | Yes: | No: | |

**2** **Compare** the fractions.

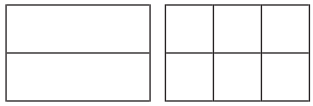
a) $\frac{1}{4} \bigcirc \frac{3}{4}$ b) $\frac{3}{16} \bigcirc \frac{15}{16}$ c) $\frac{4}{10} \bigcirc \frac{5}{10}$

d) $\frac{2}{3} \bigcirc \frac{1}{3}$ e) $\frac{3}{5} \bigcirc \frac{1}{5}$ f) $\frac{2}{9} \bigcirc \frac{1}{9}$

g) $\frac{5}{4} \bigcirc \frac{3}{4}$ h) $\frac{6}{5} \bigcirc \frac{5}{5}$ i) $\frac{1}{2} \bigcirc \frac{2}{2}$

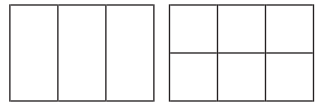
**3** **Colour** each pair of figures to represent the given fractions.
Then **compare** the fractions using the correct symbol: <, > or =.

a)



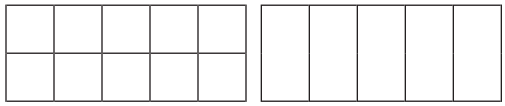
$\frac{1}{2}$ ◯ $\frac{4}{6}$

b)



$\frac{1}{3}$ ◯ $\frac{4}{6}$

c)

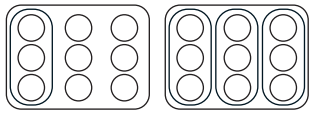


$\frac{4}{10}$ ◯ $\frac{1}{5}$

d)

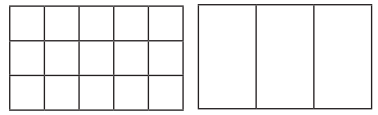
$\frac{6}{8}$ ◯ $\frac{3}{4}$

e)



$\frac{3}{9}$ ◯ $\frac{2}{3}$

f)



$\frac{7}{15}$ ◯ $\frac{2}{3}$

**4** **Solve** the problems.

a) Edward has assembled $\frac{3}{8}$ of his mosaic. Virgil has assembled $\frac{8}{16}$ of his.
Whose mosaic is further along?

_____ mosaic is further along.

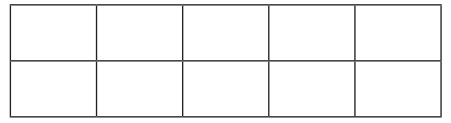
Edward's mosaic

Virgil's mosaic

b) Anthony has sold $\frac{3}{5}$ of his 10 concert tickets. Fatima has sold $\frac{7}{10}$ of hers.
Who has sold more concert tickets?

_____ has sold more concert tickets.

Anthony's tickets



Fatima's tickets

# I Use Reasoning

The organizers of a benefit dinner-concert expect 80 people to attend.
They need 8 matching tablecloths to cover the tables.

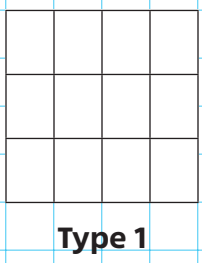
These are the types of tablecloths available:

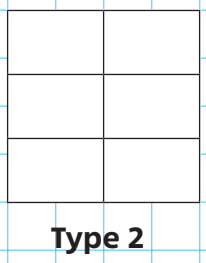
- Type 1: $\frac{5}{12}$ of the cloth is green, and the rest is white.
- Type 2: $\frac{2}{6}$ of the cloth is green, and the rest is white.
- Type 3: $\frac{13}{24}$ of the cloth is green, and the rest is white.

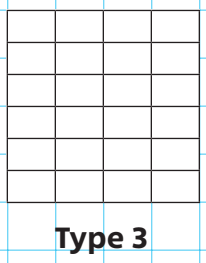
These are the prices of the tablecloths:

| Type 1 | Type 2 | Type 3 |
|---|---|---|
| $4 | $5 | $6 |


The organizers choose the type with the least green on it.
How much will the 8 tablecloths cost?




The 8 tablecloths will cost _____.

I Spy

# The Mystery of the Missing Guitar

Since the last band practice, no one can find the school's guitar. The music teacher suspects that one of four volunteers may have put the guitar away in the wrong place. Look on pages 67 to 111 for the instruments shown below. Near each instrument is a number. Copy this number into the corresponding box below. Then follow the instructions at the bottom of the page.

To find the absent-minded volunteer, match each number in the boxes to the corresponding clue in the list to the right. Once you have found the correct person, circle him or her on the next page.

Watch out! There are clues that do not match any of the numbers in the boxes. Ignore them!

**Clues**

The volunteer ...

**180** has big hands.
**140** has brown hair.
**3** has changed his or her hair colour.
**671** is wearing a blue sweater.
**516** is older than 30.
**903** is not a man.
**554** has brown eyes.
**54** is not a woman.