FRACTIONS

A Complete Mathematics Worksheet Pack

Learn • Practise • Apply • Reason

CONCEPTS	SKILLS	APPLICATION
Understand parts of a whole, unit fractions and equivalent fractions.	Represent, compare, simplify and calculate with fractions.	Solve everyday problems and explain mathematical thinking.

Flexible, non-grade-specific mathematics resource

Name: _____

Date: _____

WORKSHEET 01 | Understanding Fractions

Name: _____ Date: _____

A. Learn the idea

A fraction shows equal parts of a whole. The denominator (bottom number) tells how many equal parts make the whole. The numerator (top number) tells how many parts are being considered.

B. Identify

1) A pizza is cut into 8 equal slices. 3 slices are shaded. Write the fraction shaded.
2) A shape is divided into 5 equal parts. 2 are coloured. Write the fraction coloured.
3) In 7/9, identify the numerator and denominator.
4) What does 1/6 mean?
5) Draw a rectangle and show 3/4.

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C. Think

6) Why must the parts be equal when representing a fraction?
7) Can 2/4 represent the same amount as 1/2? Explain.

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Show your working and explain your thinking wherever needed.

WORKSHEET 02 | Fractions on Shapes and Number Lines

Name: _____ Date: _____

A. Visualise

Fractions can be shown by shading equal parts of a shape or by marking a position between 0 and 1 on a number line.

B. Practise

1) Draw a circle and shade 1/3.
2) Draw a rectangle and shade 5/8.
3) Divide a strip into 4 equal parts and mark 3/4.
4) On a number line from 0 to 1, mark 1/2.
5) Mark 1/4 and 3/4 on a number line.
6) Which is closer to 1: 3/4 or 1/4?

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C. Reason

7) How many equal intervals are needed to show fifths between 0 and 1?
8) Explain why 4/4 is located at 1.

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Show your working and explain your thinking wherever needed.

WORKSHEET 03 | Unit Fractions and Fraction Families

Name: _____ Date: _____

A. Learn

A unit fraction has a numerator of 1, such as 1/2, 1/5 or 1/8. When the whole is the same size, the more equal parts it is divided into, the smaller each part becomes.

B. Practise

1) Circle the unit fractions: 1/3, 2/5, 1/7, 4/9, 1/10.
2) Which is larger: 1/3 or 1/6?
3) Which is smaller: 1/4 or 1/8?
4) Arrange 1/2, 1/5 and 1/3 from smallest to largest.
5) Complete: 1 whole = ____ halves.
6) Complete: 1 whole = ____ quarters.

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C. Think

7) Explain why 1/10 is smaller than 1/5 when the wholes are equal.

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Show your working and explain your thinking wherever needed.

WORKSHEET 04 | Equivalent Fractions

Name: _____ Date: _____

A. Learn

Equivalent fractions name the same amount. Multiply or divide both the numerator and denominator by the same non-zero number. For example, 1/2 = 2/4 = 3/6.

B. Complete

1) 1/2 = __/4
2) 2/3 = 4/__
3) 3/5 = __/10
4) 2/4 = __/2
5) 4/8 = __/4
6) 3/4 = 6/__
7) Write two fractions equivalent to 2/5.

_____

_____

C. Reason

8) Are 2/6 and 1/3 equivalent? Show how you know.

_____

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Show your working and explain your thinking wherever needed.

WORKSHEET 05 | Comparing and Ordering Fractions

Name: _____ Date: _____

A. Learn

To compare fractions, look for common denominators or use visual models. For fractions with the same denominator, the larger numerator gives the larger fraction.

B. Compare using <, > or =

1) 3/8 __ 5/8
2) 2/7 __ 4/7
3) 1/2 __ 2/4
4) 3/4 __ 1/4
5) 2/3 __ 3/6
6) 5/10 __ 1/2
7) Arrange 1/4, 3/4, 2/4 in ascending order.

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C. Explain

8) How can you compare 2/5 and 4/5 without drawing them?

_____

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Show your working and explain your thinking wherever needed.

WORKSHEET 06 | Simplifying Fractions

Name: _____ Date: _____

A. Learn

A fraction is in its simplest form when the numerator and denominator have no common factor greater than 1. Divide both by the same common factor.

B. Simplify

1) 2/4
2) 3/9
3) 4/8
4) 6/10
5) 8/12
6) 10/15
7) 12/16
8) 15/25

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C. Think

9) Why must you divide the numerator and denominator by the same number?

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Show your working and explain your thinking wherever needed.

WORKSHEET 07 | Fractions of a Quantity

Name: _____ Date: _____

A. Learn

To find a fraction of a quantity, divide by the denominator and then multiply by the numerator. For example, 3/4 of 20 = 20 ÷ 4 × 3 = 15.

B. Calculate

1) 1/2 of 18
2) 1/3 of 24
3) 3/4 of 20
4) 2/5 of 30
5) 3/8 of 40
6) 5/6 of 42
7) 2/3 of 27
8) 7/10 of 50

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C. Apply

9) There are 28 students. 3/4 are present. How many are present?
10) A basket has 36 apples. 2/3 are green. How many are green?

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Show your working and explain your thinking wherever needed.

WORKSHEET 08 | Adding and Subtracting Fractions

Name: _____ Date: _____

A. Learn

When denominators are the same, add or subtract the numerators and keep the denominator unchanged. For different denominators, first find a common denominator.

B. Calculate

1) 2/7 + 3/7
2) 6/9 – 2/9
3) 1/4 + 2/4
4) 5/8 – 1/8
5) 1/2 + 1/4
6) 3/4 – 1/2
7) 1/3 + 1/6
8) 5/6 – 1/3

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C. Challenge

9) Mia ate 1/4 of a cake and her brother ate 2/4. What fraction was eaten altogether?
10) A ribbon was 3/4 metre long. 1/4 metre was used. How much remains?

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Show your working and explain your thinking wherever needed.

WORKSHEET 09 | Mixed Numbers and Improper Fractions

Name: _____ Date: _____

A. Learn

A proper fraction has a numerator smaller than its denominator. An improper fraction has a numerator equal to or greater than its denominator. A mixed number has a whole number and a fraction, such as 1 1/2.

B. Convert

1) Is 3/5 proper or improper?
2) Is 7/4 proper or improper?
3) Convert 5/2 to a mixed number.
4) Convert 9/4 to a mixed number.
5) Convert 1 1/3 to an improper fraction.
6) Convert 2 2/5 to an improper fraction.

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C. Reason

7) Explain how you can tell whether a fraction is proper or improper.

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Show your working and explain your thinking wherever needed.

WORKSHEET 10 | Fractions in Everyday Life

Name: _____ Date: _____

A. Solve

1) A recipe needs 3/4 cup of milk. You make half the recipe. How much milk is needed?
2) A 2-metre ribbon is cut into 4 equal pieces. What length is each piece?
3) A book has 120 pages. Sam reads 1/3 of it. How many pages has he read?
4) A tank is 5/8 full. What fraction is empty?
5) A class has 32 learners. 3/8 walk to school. How many learners walk?
6) A pizza has 8 equal slices. 5 are eaten. What fraction remains?

B. Explain

7) Give two examples of where fractions are used in daily life.

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Show your working and explain your thinking wherever needed.

WORKSHEET 11 | Fraction Detective: Reasoning and Challenge

Name: _____ Date: _____

A. Solve the clues

1) I am equivalent to 1/2 and my denominator is 10. What fraction am I?
2) I am a fraction greater than 1/2 but less than 1. My denominator is 8 and numerator is 5. Who am I?
3) Which is greater: 3/5 or 2/3? Show your method.
4) A number is 2/3 of 36. What is the number?
5) Find the missing numerator: __/12 = 3/4.

B. Challenge

6) Write three different fractions equivalent to 3/4.
7) Create two fractions with denominator 12 that add to 1.
8) A cake is cut into 12 equal pieces. 1/3 is eaten in the morning and 1/4 in the evening. What fraction is eaten altogether? What fraction remains?
9) Explain why 2/4 and 3/6 are equivalent.

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Show your working and explain your thinking wherever needed.

TEACHER ANSWER KEY

Suggested answers. Accept equivalent fractions and other valid methods where appropriate.

Worksheet 1

1) 3/8 2) 2/5 3) Numerator 7; denominator 9 4) One of six equal parts 5) Drawing should show 3 of 4 equal parts 6) Unequal parts do not represent equal shares 7) Yes, both represent one half.

Worksheet 2

1) Drawing with 1 of 3 equal parts shaded 2) 5 of 8 shaded 3) Three of four parts 4) Midpoint 5) Quarter and three-quarter marks 6) 3/4 7) Five equal intervals 8) Four quarters make one whole.

Worksheet 3

1) 1/3, 1/7, 1/10 2) 1/3 3) 1/8 4) 1/5, 1/3, 1/2 5) 2 6) 4 7) More equal parts make each part smaller.

Worksheet 4

1) 2 2) 6 3) 6 4) 1 5) 2 6) 8 7) e.g. 4/10 and 6/15 8) Yes; divide 2/6 by 2 to get 1/3.

Worksheet 5

1) < 2) < 3) = 4) > 5) > 6) = 7) 1/4, 2/4, 3/4 8) Same denominator: compare numerators.

Worksheet 6

1) 1/2 2) 1/3 3) 1/2 4) 3/5 5) 2/3 6) 2/3 7) 3/4 8) 3/5 9) Keep the value unchanged by dividing both parts by the same factor.

Worksheet 7

1) 9 2) 8 3) 15 4) 12 5) 15 6) 35 7) 18 8) 35 9) 21 students 10) 24 apples.

Worksheet 8

1) 5/7 2) 4/9 3) 3/4 4) 4/8 = 1/2 5) 3/4 6) 1/6 7) 1/2 8) 1/2 9) 3/4 cake 10) 1/2 metre.

Worksheet 9

1) Proper 2) Improper 3) 2 1/2 4) 2 1/4 5) 4/3 6) 12/5 7) Proper: numerator smaller; improper: numerator equal to or larger than denominator.

Worksheet 10

1) 3/8 cup 2) 1/2 metre 3) 40 pages 4) 3/8 empty 5) 12 learners 6) 3/8 remains 7) Examples: cooking, measuring, sharing, time.

Worksheet 11

1) 5/10 2) 5/8 3) 2/3 (cross-products: 10 vs 9) 4) 24 5) 9 6) e.g. 6/8, 9/12, 12/16 7) e.g. 5/12 + 7/12 8) Eaten: 7/12; remains: 5/12 9) Both simplify to 1/2.