

Name _____

Date _____

7.1 Fractions and equivalence — worksheet

Recognise equivalent fractions, simplify, compare and order fractions, and convert between improper fractions and mixed numbers. · 75 questions · Show your working.

Remember

- The **denominator** says how many equal parts make the whole; the **numerator** says how many you have.
- Multiply or divide **both** parts by the same number to get an **equivalent** fraction. Adding does not work.
- To **simplify**, divide both parts by their HCF — one step, not several.
- To **compare**, rewrite both over a common denominator, then compare the numerators.
- The lowest common denominator is the LCM of the two denominators.
- An **improper** fraction is at least 1; a **mixed number** shows the whole part separately.
- $7/4 \rightarrow 7 \div 4 = 1$ remainder 3 $\rightarrow 1 \frac{3}{4}$. Going back: $1 \times 4 + 3 = 7$.
- Never compare numerators until the denominators match — that is the commonest mistake in this unit.

A · Fluency — Simplify, compare and convert.

- 1 Write $\frac{1}{2}$ in its simplest form.

- 2 Write $\frac{1}{3}$ in its simplest form.

- 3 Write $\frac{3}{4}$ in its simplest form.

- 4 Write $\frac{2}{3}$ in its simplest form.

- 5 Write $\frac{2}{3}$ in its simplest form.

- 6 Write $\frac{2}{3}$ in its simplest form.

- 7 Write $\frac{2}{3}$ in its simplest form.

- 8 Write $\frac{3}{5}$ in its simplest form.

- 9 Write $\frac{3}{4}$ in its simplest form.

- 10 Write $\frac{4}{9}$ in its simplest form.

- 11 Write $\frac{3}{10}$ in its simplest form.

- 12 Write 2^5 in its simplest form.
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- 13 Which fraction is larger, 1^2 or 3^4 ?
☐ $1/2$
☐ $3/4$
- 14 Which fraction is larger, 2^3 or 3^5 ?
☐ $2/3$
☐ $3/5$
- 15 Which fraction is larger, 5^8 or 7^{12} ?
☐ $5/8$
☐ $7/12$
- 16 Which fraction is larger, 3^4 or 5^6 ?
☐ $3/4$
☐ $5/6$
- 17 Which fraction is larger, 2^5 or 3^8 ?
☐ $2/5$
☐ $3/8$
- 18 Which fraction is larger, 7^{10} or 2^3 ?
☐ $7/10$
☐ $2/3$
- 19 Which fraction is larger, 4^9 or 1^2 ?
☐ $4/9$
☐ $1/2$
- 20 Which fraction is larger, 5^6 or 7^9 ?
☐ $5/6$
☐ $7/9$
- 21 Write 7^4 as a mixed number.
-
- 22 Write 9^2 as a mixed number.
-
- 23 Write 11^3 as a mixed number.
-
- 24 Write 17^5 as a mixed number.
-
- 25 Write 13^6 as a mixed number.
-
- 26 Write 23^8 as a mixed number.
-
- 27 Write 19^4 as a mixed number.
-
- 28 Write 25^7 as a mixed number.
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29 Write $2\frac{1}{3}$ as an improper fraction.

30 Write $1\frac{3}{4}$ as an improper fraction.

31 Write $3\frac{2}{5}$ as an improper fraction.

32 Write $4\frac{1}{2}$ as an improper fraction.

33 Write $2\frac{5}{6}$ as an improper fraction.

34 Write $5\frac{3}{8}$ as an improper fraction.

35 Write $1\frac{7}{10}$ as an improper fraction.

36 Write $3\frac{4}{9}$ as an improper fraction.

37 Write $\frac{1}{2}$ as a decimal.

38 Write $\frac{1}{4}$ as a decimal.

39 Write $\frac{3}{4}$ as a decimal.

40 Write $\frac{1}{5}$ as a decimal.

41 Write $\frac{2}{5}$ as a decimal.

42 Write $\frac{1}{10}$ as a decimal.

43 Write $\frac{3}{10}$ as a decimal.

44 Write $\frac{1}{8}$ as a decimal.

45 Write $\frac{7}{10}$ as a decimal.

46 Write $\frac{3}{5}$ as a decimal.

B · Reasoning — Why the rules are what they are.

47 What does the denominator of a fraction tell you?

- ☐ How many parts you have
- ☐ How many equal parts the whole is split into
- ☐ The size of the whole
- ☐ Nothing

- 48** Two fractions are equivalent when ...
- ☐ they look similar
 - ☐ they have the same value
 - ☐ they have the same numerator
 - ☐ they have the same denominator
- 49** How do you make an equivalent fraction?
- ☐ Add the same number to top and bottom
 - ☐ Multiply or divide top and bottom by the same number
 - ☐ Multiply the top only
 - ☐ Swap the top and bottom
- 50** A fraction is in its simplest form when ...
- ☐ the numerator is 1
 - ☐ the numerator and denominator have no common factor except 1
 - ☐ the denominator is even
 - ☐ it is less than 1
- 51** To compare $\frac{2}{3}$ and $\frac{3}{5}$, what is the first step?
- ☐ Add them
 - ☐ Write them with the same denominator
 - ☐ Turn them into mixed numbers
 - ☐ Compare the numerators as they are
- 52** Is $\frac{7}{4}$ an improper fraction?
- ☐ Yes
 - ☐ No
- 53** Is $\frac{5}{5}$ equal to 1?
- ☐ Yes
 - ☐ No
- 54** Does multiplying the numerator only change the value of a fraction?
- ☐ Yes
 - ☐ No
- 55** Which is the best common denominator for $\frac{1}{4}$ and $\frac{1}{6}$?
- ☐ 24
 - ☐ 12
 - ☐ 10
 - ☐ 4
- 56** Zara says $\frac{3}{8}$ is bigger than $\frac{1}{2}$ because 3 is bigger than 1. What has she missed?
- ☐ Nothing
 - ☐ The denominators are different, so the parts are different sizes
 - ☐ $\frac{3}{8}$ is not a fraction
 - ☐ $\frac{1}{2}$ is a decimal
- 57** How many eighths make one half?
-
-
- 58** How many twelfths make three quarters?
-
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C · Challenge — Fractions between fractions.

- 59 Write a fraction exactly halfway between $\frac{1}{4}$ and $\frac{1}{2}$.

- 60 Write a fraction exactly halfway between $\frac{1}{3}$ and $\frac{1}{2}$.

- 61 A fraction equivalent to $\frac{3}{5}$ has a denominator of 40. What is its numerator?

- 62 A fraction equivalent to $\frac{7}{9}$ has a numerator of 35. What is its denominator?

- 63 How many fractions with denominator 12 lie strictly between $\frac{1}{4}$ and $\frac{3}{4}$?

- 64 Which is larger, $\frac{5}{8}$ or $\frac{7}{12}$? Give the larger one.

- 65 Write 0.35 as a fraction in its simplest form. Give the denominator.

D · Word problems — Fractions of real quantities.

- 66 A pizza is cut into 8 equal slices and 6 are eaten. What fraction is eaten, in its simplest form?

- 67 18 of the 24 learners in a class walk to school. What fraction is that, simplified?

- 68 A jug holds 500 ml and 200 ml is poured out. What fraction is poured out, simplified?

- 69 A book has 90 pages and 30 have been read. What fraction is read, simplified?

- 70 Two thirds of 45 learners came by bus. How many is that?

- 71 Three quarters of a 60-minute lesson has gone. How many minutes is that?

- 72 Five eighths of 32 seats are taken. How many seats is that?

- 73 In a bag of 20 sweets, 12 are red. What fraction are red, simplified?

- 74 A recipe uses $\frac{3}{4}$ of a 400 g bag of flour. How many grams is that?

- 75 Two fifths of a 350 km journey is done. How many kilometres is that?
