Sismo Learning WORKSHEET

Year 5 || Equivalent fractions

Total: 40 marks

Name: Date: Score: / 40

Remember: equivalent fractions are worth the same amount. To find one, multiply or divide the numerator and the denominator by the **same** number. $\frac{1}{2} = \frac{1 \times 3}{2 \times 3} = \frac{3}{6}$

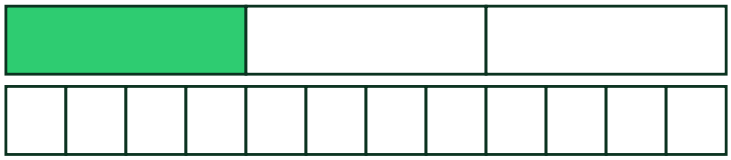
Section A — Fractions in pictures

1 What fraction of the bar is shaded? Write it, then write it in its simplest form. [2 marks]



Fraction shaded: $\frac{\square}{\square}$ Simplest form: $\frac{\square}{\square}$

2 The top bar shows $\frac{1}{3}$. Shade the bottom bar so it shows the same amount. How many twelfths is that? [1 mark]



$\frac{1}{3} = \frac{\square}{12}$

3 Write the shaded fraction in tenths, then as an equivalent fraction in fifths. [2 marks]



$\frac{\square}{10} = \frac{\square}{5}$

Section B — Find the missing number

4 $\frac{2}{3} = \frac{\square}{12}$

5 $\frac{3}{5} = \frac{\square}{20}$

6 $\frac{5}{6} = \frac{25}{\square}$

7 $\frac{\square}{4} = \frac{21}{28}$

8 $\frac{7}{9} = \frac{28}{\square}$

9 $\frac{4}{7} = \frac{\square}{35}$

10 Complete the chain of equivalent fractions. [3 marks]

$\frac{1}{2} = \frac{2}{\square} = \frac{\square}{12} = \frac{10}{\square}$

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Section C

Simplify fully

Divide the numerator and denominator by their highest common factor.

11 $\frac{6}{9} = \frac{\square}{\square}$

12 $\frac{12}{16} = \frac{\square}{\square}$

13 $\frac{15}{25} = \frac{\square}{\square}$

14 $\frac{18}{24} = \frac{\square}{\square}$

15 $\frac{20}{45} = \frac{\square}{\square}$

Section D

Tenths and hundredths

16 $\frac{7}{10} = \frac{\square}{100}$

17 $\frac{40}{100} = \frac{\square}{10}$

19 $\frac{1}{4} = \frac{\square}{100}$

18 Complete: $\frac{3}{5} = \frac{\square}{10} = \frac{\square}{100}$ **[2 marks]**

Section E

Spot the equivalents

20 Circle every fraction that is equivalent to $\frac{2}{3}$. **[3 marks]**

$\frac{4}{6}$ $\frac{6}{9}$ $\frac{8}{10}$ $\frac{10}{15}$ $\frac{12}{16}$

21 Which is the odd one out? Explain how you know. **[2 marks]**

$\frac{3}{4}$ $\frac{9}{12}$ $\frac{15}{20}$ $\frac{12}{15}$

Section F

Compare and order

22 Write <, > or = in the box. Show how you used equivalent fractions. **[2 marks]**

$\frac{3}{4} \square \frac{5}{8}$

23 Order these fractions from smallest to largest. **[2 marks]**

$\frac{2}{3}$ $\frac{5}{6}$ $\frac{7}{12}$

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Section G

Reasoning and problem solving

24 Ada ate $\frac{3}{8}$ of a pizza. Tobi ate $\frac{6}{16}$ of an identical pizza. Tobi says, "I ate more pizza than Ada because 6 is bigger than 3." Is Tobi correct? Explain. **[2 marks]**

25 Femi says $\frac{2}{3}$ and $\frac{4}{5}$ are equivalent because he added 2 to the numerator and 2 to the denominator. Is Femi correct? Explain. **[2 marks]**

26 Write three different fractions that are equivalent to $\frac{3}{5}$. **[3 marks]**

$\frac{\square}{\square}$ $\frac{\square}{\square}$ $\frac{\square}{\square}$

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Answer Key || Equivalent fractions

Total: 40 marks

Answer Summary

Q	Answer	Marks
Q1	$\frac{6}{8}$ shaded; simplest form $\frac{3}{4}$	2
Q2	$\frac{1}{3} = \frac{4}{12}$ (shade 4 parts)	1
Q3	$\frac{4}{10} = \frac{2}{5}$	2
Q4	$\frac{8}{12}$	1
Q5	$\frac{12}{20}$	1
Q6	$\frac{25}{30}$	1
Q7	$\frac{3}{4}$	1
Q8	$\frac{28}{36}$	1
Q9	$\frac{20}{35}$	1
Q10	$\frac{2}{4}, \frac{6}{12}, \frac{10}{20}$	3
Q11	$\frac{2}{3}$	1
Q12	$\frac{3}{4}$	1
Q13	$\frac{3}{5}$	1
Q14	$\frac{3}{4}$	1
Q15	$\frac{4}{9}$	1
Q16	$\frac{70}{100}$	1
Q17	$\frac{4}{10}$	1
Q18	$\frac{6}{10} = \frac{60}{100}$	2
Q19	$\frac{25}{100}$	1
Q20	$\frac{4}{6}, \frac{6}{9}, \frac{10}{15}$	3
Q21	$\frac{12}{15}$ (the others all equal $\frac{3}{4}$)	2
Q22	$\frac{3}{4} > \frac{5}{8}$	2
Q23	$\frac{7}{12}, \frac{2}{3}, \frac{5}{6}$	2
Q24	No. $\frac{3}{8} = \frac{6}{16}$, so they ate the same	2
Q25	No. $\frac{2}{3} = \frac{10}{15}$ but $\frac{4}{5} = \frac{12}{15}$	2
Q26	Any three, e.g. $\frac{6}{10}, \frac{9}{15}, \frac{12}{20}$	3

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Full Worked Solutions

Question 1

2 marks

What fraction of the bar is shaded? Write it in its simplest form.



The darker bar shows the same shaded amount in quarters.

Step 1: Count the parts

The bar has 8 equal parts. 6 parts are shaded.

Step 2: Write the fraction shaded

Fraction shaded = $\frac{\textbf{shaded parts}}{\textbf{total parts}} = \frac{6}{8}$

Step 3: Find the highest common factor of 6 and 8

Factors of 6: 1, 2, 3, 6

Factors of 8: 1, 2, 4, 8

HCF = 2

Step 4: Divide the numerator and denominator by 2

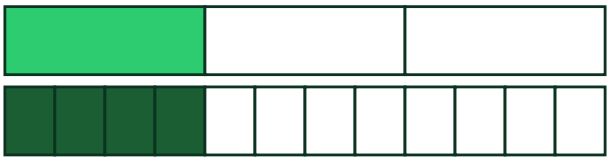
$\frac{6}{8} = \frac{6 \div 2}{8 \div 2} = \frac{3}{4}$

ANSWER $\frac{6}{8}$ **shaded, which simplifies to** $\frac{3}{4}$

Question 2

1 mark

Shade the bottom bar to show $\frac{1}{3}$*. How many twelfths is that?*



Step 1: Find what the denominator was multiplied by

$3 \times ? = 12$

$12 \div 3 = 4$, so the denominator was multiplied by 4

Step 2: Multiply the numerator by the same number

$1 \times 4 = 4$

Step 3: Write the equivalent fraction

$\frac{1}{3} = \frac{1 \times 4}{3 \times 4} = \frac{4}{12}$

ANSWER $\frac{1}{3} = \frac{4}{12}$**, so shade 4 of the 12 parts**

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Question 3

2 marks

Write the shaded fraction in tenths, then in fifths.

Step 1: Count the parts

10 equal parts, 4 shaded, so the fraction is $\frac{4}{10}$

Step 2: Find what 10 was divided by to make 5

$10 \div ? = 5$

$10 \div 5 = 2$, so divide by 2

Step 3: Divide the numerator by the same number

$$\frac{4}{10} = \frac{4 \div 2}{10 \div 2} = \frac{2}{5}$$

ANSWER $\frac{4}{10} = \frac{2}{5}$

Question 4

1 mark

Find the missing number: $\frac{2}{3} = \frac{\square}{12}$

Step 1: Compare the denominators

$3 \times ? = 12$

$12 \div 3 = 4$, so the denominator was multiplied by 4

Step 2: Multiply the numerator by the same number

$2 \times 4 = 8$

Step 3: Write the equivalent fraction

$$\frac{2}{3} = \frac{2 \times 4}{3 \times 4} = \frac{8}{12}$$

ANSWER **Missing number = 8** $\left(\frac{2}{3} = \frac{8}{12}\right)$

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Question 5

1 mark

Find the missing number: $\frac{3}{5} = \frac{\square}{20}$

Step 1: Compare the denominators

$5 \times ? = 20$

$20 \div 5 = 4$, so the denominator was multiplied by 4

Step 2: Multiply the numerator by the same number

$3 \times 4 = 12$

Step 3: Write the equivalent fraction

$$\frac{3}{5} = \frac{3 \times 4}{5 \times 4} = \frac{12}{20}$$

ANSWER Missing number = 12 $\left(\frac{3}{5} = \frac{12}{20}\right)$

Question 6

1 mark

Find the missing number: $\frac{5}{6} = \frac{25}{\square}$

Step 1: Compare the numerators

$5 \times ? = 25$

$25 \div 5 = 5$, so the numerator was multiplied by 5

Step 2: Multiply the denominator by the same number

$6 \times 5 = 30$

Step 3: Write the equivalent fraction

$$\frac{5}{6} = \frac{5 \times 5}{6 \times 5} = \frac{25}{30}$$

ANSWER Missing number = 30 $\left(\frac{5}{6} = \frac{25}{30}\right)$

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Question 7

1 mark

Find the missing number: $\frac{\square}{4} = \frac{21}{28}$

Step 1: Compare the denominators

$4 \times ? = 28$

$28 \div 4 = 7$, so the denominator was multiplied by 7

Step 2: Work backwards: divide the numerator by the same number

$21 \div 7 = 3$

Step 3: Check by multiplying

$\frac{3}{4} = \frac{3 \times 7}{4 \times 7} = \frac{21}{28}$ ✓

ANSWER Missing number = 3 $(\frac{3}{4} = \frac{21}{28})$

Question 8

1 mark

Find the missing number: $\frac{7}{9} = \frac{28}{\square}$

Step 1: Compare the numerators

$7 \times ? = 28$

$28 \div 7 = 4$, so the numerator was multiplied by 4

Step 2: Multiply the denominator by the same number

$9 \times 4 = 36$

Step 3: Write the equivalent fraction

$\frac{7}{9} = \frac{7 \times 4}{9 \times 4} = \frac{28}{36}$

ANSWER Missing number = 36 $(\frac{7}{9} = \frac{28}{36})$

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Question 9

1 mark

Find the missing number: $\frac{4}{7} = \frac{\square}{35}$

Step 1: Compare the denominators

$7 \times ? = 35$

$35 \div 7 = 5$, so the denominator was multiplied by 5

Step 2: Multiply the numerator by the same number

$4 \times 5 = 20$

Step 3: Write the equivalent fraction

$$\frac{4}{7} = \frac{4 \times 5}{7 \times 5} = \frac{20}{35}$$

ANSWER Missing number = 20 $\left(\frac{4}{7} = \frac{20}{35}\right)$

Question 10

3 marks

Complete the chain: $\frac{1}{2} = \frac{2}{\square} = \frac{\square}{12} = \frac{10}{\square}$

Step 1: Find $\frac{2}{\square}$

Numerator: $1 \times 2 = 2$, so multiply by 2

Denominator: $2 \times 2 = 4$ → $\frac{2}{4}$

Step 2: Find $\frac{\square}{12}$

Denominator: $2 \times 6 = 12$, so multiply by 6

Numerator: $1 \times 6 = 6$ → $\frac{6}{12}$

Step 3: Find $\frac{10}{\square}$

Numerator: $1 \times 10 = 10$, so multiply by 10

Denominator: $2 \times 10 = 20$ → $\frac{10}{20}$

ANSWER $\frac{1}{2} = \frac{2}{4} = \frac{6}{12} = \frac{10}{20}$ **(missing numbers 4, 6, 20)**

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Question 11

1 mark

Simplify fully: $\frac{6}{9}$

Step 1: List the factors of 6 and 9

Factors of 6: 1, 2, 3, 6

Factors of 9: 1, 3, 9

Step 2: Find the highest common factor (HCF)

HCF of 6 and 9 = 3

Step 3: Divide the numerator and denominator by 3

$$\frac{6}{9} = \frac{6 \div 3}{9 \div 3} = \frac{2}{3}$$

Step 4: Check it is fully simplified

The only common factor of 2 and 3 is 1 ✓

ANSWER $\frac{6}{9} = \frac{2}{3}$

Question 12

1 mark

Simplify fully: $\frac{12}{16}$

Step 1: List the factors of 12 and 16

Factors of 12: 1, 2, 3, 4, 6, 12

Factors of 16: 1, 2, 4, 8, 16

Step 2: Find the highest common factor (HCF)

HCF of 12 and 16 = 4

Step 3: Divide the numerator and denominator by 4

$$\frac{12}{16} = \frac{12 \div 4}{16 \div 4} = \frac{3}{4}$$

Step 4: Check it is fully simplified

The only common factor of 3 and 4 is 1 ✓

ANSWER $\frac{12}{16} = \frac{3}{4}$

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Question 13

1 mark

Simplify fully: $\frac{15}{25}$

Step 1: List the factors of 15 and 25

Factors of 15: 1, 3, 5, 15

Factors of 25: 1, 5, 25

Step 2: Find the highest common factor (HCF)

HCF of 15 and 25 = 5

Step 3: Divide the numerator and denominator by 5

$$\frac{15}{25} = \frac{15 \div 5}{25 \div 5} = \frac{3}{5}$$

Step 4: Check it is fully simplified

The only common factor of 3 and 5 is 1 ✓

ANSWER $\frac{15}{25} = \frac{3}{5}$

Question 14

1 mark

Simplify fully: $\frac{18}{24}$

Step 1: List the factors of 18 and 24

Factors of 18: 1, 2, 3, 6, 9, 18

Factors of 24: 1, 2, 3, 4, 6, 8, 12, 24

Step 2: Find the highest common factor (HCF)

HCF of 18 and 24 = 6

Step 3: Divide the numerator and denominator by 6

$$\frac{18}{24} = \frac{18 \div 6}{24 \div 6} = \frac{3}{4}$$

Step 4: Check it is fully simplified

The only common factor of 3 and 4 is 1 ✓

ANSWER $\frac{18}{24} = \frac{3}{4}$

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Question 15

1 mark

Simplify fully: $\frac{20}{45}$

Step 1: List the factors of 20 and 45

Factors of 20: 1, 2, 4, 5, 10, 20

Factors of 45: 1, 3, 5, 9, 15, 45

Step 2: Find the highest common factor (HCF)

HCF of 20 and 45 = 5

Step 3: Divide the numerator and denominator by 5

$$\frac{20}{45} = \frac{20 \div 5}{45 \div 5} = \frac{4}{9}$$

Step 4: Check it is fully simplified

The only common factor of 4 and 9 is 1 ✓

ANSWER $\frac{20}{45} = \frac{4}{9}$

Question 16

1 mark

$$\frac{7}{10} = \frac{\square}{100}$$

Step 1: Compare the denominators

10 × ? = 100

100 ÷ 10 = 10, so multiply by 10

Step 2: Multiply the numerator by 10

7 × 10 = 70

Step 3: Write the equivalent fraction

$$\frac{7}{10} = \frac{7 \times 10}{10 \times 10} = \frac{70}{100}$$

ANSWER $\frac{7}{10} = \frac{70}{100}$

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Question 17

1 mark

$\frac{40}{100} = \frac{\square}{10}$

Step 1: Compare the denominators

100 ÷ ? = 10

100 ÷ 10 = 10, so divide by 10

Step 2: Divide the numerator by 10

40 ÷ 10 = 4

Step 3: Write the equivalent fraction

$$\frac{40}{100} = \frac{40 \div 10}{100 \div 10} = \frac{4}{10}$$

ANSWER $\frac{40}{100} = \frac{4}{10}$

Question 18

2 marks

$\frac{3}{5} = \frac{\square}{10} = \frac{\square}{100}$

Step 1: Change fifths to tenths

5 × 2 = 10, so multiply by 2

$$\frac{3}{5} = \frac{3 \times 2}{5 \times 2} = \frac{6}{10}$$

Step 2: Change tenths to hundredths

10 × 10 = 100, so multiply by 10

$$\frac{6}{10} = \frac{6 \times 10}{10 \times 10} = \frac{60}{100}$$

ANSWER $\frac{3}{5} = \frac{6}{10} = \frac{60}{100}$

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Question 19

1 mark

$\frac{1}{4} = \frac{\square}{100}$

Step 1: Compare the denominators

4 × ? = 100

100 ÷ 4 = 25, so multiply by 25

Step 2: Multiply the numerator by 25

1 × 25 = 25

Step 3: Write the equivalent fraction

$\frac{1}{4} = \frac{1 \times 25}{4 \times 25} = \frac{25}{100}$

ANSWER $\frac{1}{4} = \frac{25}{100}$

Question 20

3 marks

Circle every fraction equivalent to $\frac{2}{3}$: $\frac{4}{6}$, $\frac{6}{9}$, $\frac{8}{10}$, $\frac{10}{15}$, $\frac{12}{16}$

Step 1: Simplify each fraction fully

$\frac{4}{6} = \frac{4 \div 2}{6 \div 2} = \frac{2}{3}$ ✓ equivalent

$\frac{6}{9} = \frac{6 \div 3}{9 \div 3} = \frac{2}{3}$ ✓ equivalent

$\frac{8}{10} = \frac{8 \div 2}{10 \div 2} = \frac{4}{5}$ × not equivalent

$\frac{10}{15} = \frac{10 \div 5}{15 \div 5} = \frac{2}{3}$ ✓ equivalent

$\frac{12}{16} = \frac{12 \div 4}{16 \div 4} = \frac{3}{4}$ × not equivalent

Step 2: Pick the ones that simplify to $\frac{2}{3}$

$\frac{4}{6}$, $\frac{6}{9}$ and $\frac{10}{15}$

ANSWER $\frac{4}{6}$, $\frac{6}{9}$, $\frac{10}{15}$

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Question 21

2 marks

Which is the odd one out? $\frac{3}{4}$, $\frac{9}{12}$, $\frac{15}{20}$, $\frac{12}{15}$

Step 1: Simplify each fraction fully

$\frac{3}{4}$ is already in its simplest form

$\frac{9}{12} = \frac{9 \div 3}{12 \div 3} = \frac{3}{4}$

$\frac{15}{20} = \frac{15 \div 5}{20 \div 5} = \frac{3}{4}$

$\frac{12}{15} = \frac{12 \div 3}{15 \div 3} = \frac{4}{5}$

Step 2: Compare the results

Three fractions simplify to $\frac{3}{4}$. Only $\frac{12}{15}$ simplifies to $\frac{4}{5}$.

ANSWER $\frac{12}{15}$ **is the odd one out because it equals** $\frac{4}{5}$**, not** $\frac{3}{4}$

Question 22

2 marks

Write <, > or = : $\frac{3}{4} \square \frac{5}{8}$

Step 1: Make the denominators the same

8 is a multiple of 4: 4 × 2 = 8

$\frac{3}{4} = \frac{3 \times 2}{4 \times 2} = \frac{6}{8}$

Step 2: Compare the numerators

Now compare $\frac{6}{8}$ and $\frac{5}{8}$

6 is greater than 5, so $\frac{6}{8} > \frac{5}{8}$

ANSWER $\frac{3}{4} > \frac{5}{8}$

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Question 23

2 marks

Order from smallest to largest: $\frac{2}{3}, \frac{5}{6}, \frac{7}{12}$

Step 1: Choose a common denominator

3, 6 and 12 all go into 12, so use twelfths

Step 2: Convert each fraction to twelfths

$\frac{2}{3} = \frac{2 \times 4}{3 \times 4} = \frac{8}{12}$

$\frac{5}{6} = \frac{5 \times 2}{6 \times 2} = \frac{10}{12}$

$\frac{7}{12}$ stays as $\frac{7}{12}$

Step 3: Order the numerators

$7 < 8 < 10$, so $\frac{7}{12} < \frac{8}{12} < \frac{10}{12}$

Step 4: Write the original fractions in order

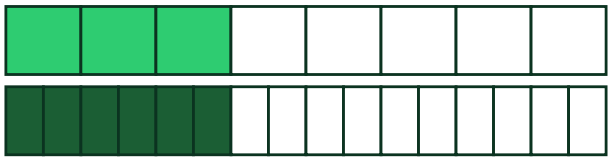
$\frac{7}{12}, \frac{2}{3}, \frac{5}{6}$

ANSWER $\frac{7}{12}, \frac{2}{3}, \frac{5}{6}$

Question 24

2 marks

Ada ate $\frac{3}{8}$*, Tobi ate* $\frac{6}{16}$*. Is Tobi correct that he ate more?*



Step 1: Make the denominators the same

$8 \times 2 = 16$

$\frac{3}{8} = \frac{3 \times 2}{8 \times 2} = \frac{6}{16}$

Step 2: Compare

Ada ate $\frac{6}{16}$ and Tobi ate $\frac{6}{16}$. These are equal.

Step 3: Explain the mistake

Tobi only looked at the numerators. His pizza was cut into smaller pieces (sixteenths), so he needed twice as many pieces to eat the same amount.

ANSWER **No, Tobi is not correct.** $\frac{3}{8} = \frac{6}{16}$**, so they ate the same amount.**

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Question 25

2 marks

Femi says $\frac{2}{3} = \frac{4}{5}$ because he added 2 to the top and bottom. Is he correct?

Step 1: Choose a common denominator

$3 \times 5 = 15$, so use fifteenths

Step 2: Convert both fractions

$$\frac{2}{3} = \frac{2 \times 5}{3 \times 5} = \frac{10}{15}$$
$$\frac{4}{5} = \frac{4 \times 3}{5 \times 3} = \frac{12}{15}$$

Step 3: Compare and explain

$\frac{10}{15}$ is not equal to $\frac{12}{15}$. To make an equivalent fraction you must multiply or divide by the same number, not add.

ANSWER **No. $\frac{2}{3} = \frac{10}{15}$ and $\frac{4}{5} = \frac{12}{15}$, so they are not equivalent.**

Question 26

3 marks

Write three fractions equivalent to $\frac{3}{5}$.

Step 1: Multiply the numerator and denominator by 2

$$\frac{3}{5} = \frac{3 \times 2}{5 \times 2} = \frac{6}{10}$$

Step 2: Multiply by 3

$$\frac{3}{5} = \frac{3 \times 3}{5 \times 3} = \frac{9}{15}$$

Step 3: Multiply by 4

$$\frac{3}{5} = \frac{3 \times 4}{5 \times 4} = \frac{12}{20}$$

ANSWER **For example $\frac{6}{10}$, $\frac{9}{15}$, $\frac{12}{20}$ (accept any correct equivalent fractions)**

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