Adding and Subtracting Fractions – Year 5

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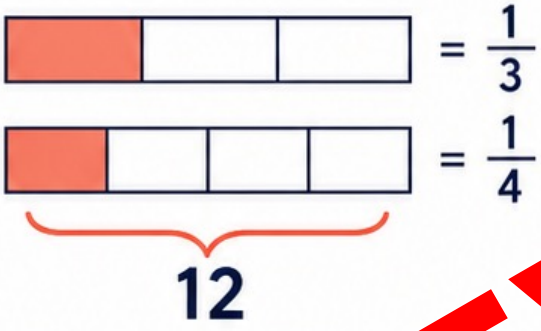
Add and Subtract Fractions

4-Step Check

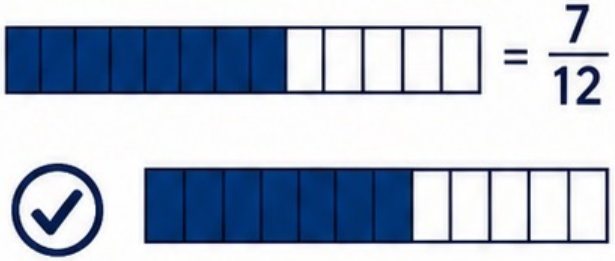
1 Find a common denominator.



2 Make equivalent fractions.

3 Add or subtract the numerators.

4 Simplify and check.



$$\frac{1}{3} + \frac{1}{4} = \frac{4}{12} + \frac{3}{12} = \frac{7}{12}$$

$$\frac{5}{6} - \frac{1}{4} = \frac{10}{12} - \frac{3}{12} = \frac{7}{12}$$

Keep the denominator once the parts are the same size.

Same-Denominator Fluency

Name: _____

When the denominators match, add or subtract the numerators.
Keep the denominator, then simplify.

1. Calculate and simplify.

1. $\frac{2}{9} + \frac{4}{9}$ _____

2. $\frac{7}{10} - \frac{3}{10}$ _____

3. $\frac{5}{12} + \frac{3}{12}$ _____

4. $\frac{11}{15} - \frac{4}{15}$ _____

5. $\frac{1}{8} + \frac{6}{8}$ _____

6. $\frac{13}{14} - \frac{5}{14}$ _____

7. $\frac{3}{5} + \frac{1}{5}$ _____

8. $\frac{9}{11} - \frac{2}{11}$ _____

9. $\frac{4}{7}$ [illegible] $\frac{2}{7}$ _____

10. $\frac{10}{12} - \frac{3}{12}$ _____

2. Ex[illegible]n y[illegible] th[illegible]ing.

11. Mia[illegible] $\frac{3}{8} + \frac{2}{8} = \frac{5}{16}$. Explain her error and correct it.

12. Write a same-denominator subtraction with an answer of $\frac{2}{9}$.

Same-Denominator Fluency

Name: ANSWERS

When the denominators match, add or subtract the numerators.
Keep the denominator, then simplify.

1. Calculate and simplify.

1. $\frac{2}{9} + \frac{4}{9}$ — $\frac{6}{9} = \frac{2}{3}$
2. $\frac{7}{10} - \frac{3}{10}$ — $\frac{4}{10} = \frac{2}{5}$
3. $\frac{5}{12} + \frac{3}{12}$ — $\frac{8}{12} = \frac{2}{3}$
4. $\frac{11}{15} - \frac{4}{15}$ — $\frac{7}{15}$
5. $\frac{1}{8} + \frac{6}{8}$ — [illegible]
6. $\frac{13}{14} - \frac{5}{14}$ — $\frac{8}{14} = \frac{4}{7}$
7. $\frac{3}{5} + \frac{1}{5}$ — [illegible]
8. $\frac{9}{11} - \frac{2}{11}$ — [illegible]
9. $\frac{4}{7}$ [illegible] $\frac{6}{7}$
10. $\frac{10}{12} - \frac{3}{12}$ — $\frac{7}{12}$

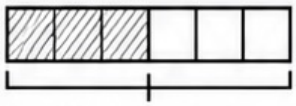
2. Ex[illegible]n yo[illegible] th[illegible]ing.

11. Mia [illegible]s $\frac{3}{8} + \frac{2}{8} = \frac{5}{16}$. Explain her error and correct it.

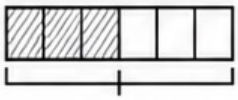
Mia added the denominators. The denominator stays 8: $\frac{3}{8} + \frac{2}{8} = \frac{5}{8}$.

12. Write a same-denominator subtraction with an answer of $\frac{2}{9}$.

$\frac{5}{9} - \frac{3}{9} = \frac{2}{9}$



Equivalent Fractions Planner



Name: _____

Use multiplication facts to create equivalent fractions.
Choose the least common denominator when you can.

A. Complete each equivalent fraction.

1. $\frac{1}{2} = \frac{\quad}{8}$

2. $\frac{2}{3} = \frac{\quad}{12}$

3. $\frac{3}{5} = \frac{\quad}{15}$

4. $\frac{5}{6} = \frac{\quad}{18}$

5. $\frac{3}{4} = \frac{\quad}{12}$

6. $\frac{7}{\quad} = \frac{\quad}{\quad}$

B. Prepare each pair.

7. $\frac{1}{3} + \frac{\quad}{4} = \frac{\quad}{12} + \frac{\quad}{12}$

8. $\frac{\quad}{5} = \frac{1}{2} = \frac{\quad}{10} - \frac{\quad}{10}$

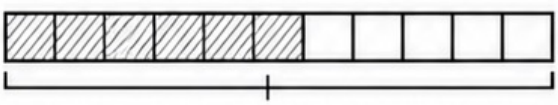
9. $\frac{2}{3} + \frac{3}{8} = \frac{\quad}{24} + \frac{\quad}{24}$

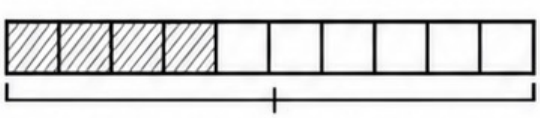
10. $\frac{5}{6} - \frac{1}{9} = \frac{\quad}{18} - \frac{\quad}{18}$

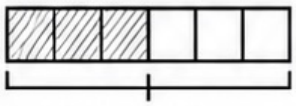
C. Circle the least common denominator.

11. $\frac{1}{4}$ and $\frac{2}{3}$ — 7 — 12 — 24

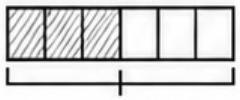
12. $\frac{3}{5}$ and $\frac{1}{10}$ — 10 — 20 — 50







Equivalent Fractions Planner



Name: ANSWERS

Use multiplication facts to create equivalent fractions.
Choose the least common denominator when you can.

A. Complete each equivalent fraction.

1. $\frac{1}{2} = \frac{4}{8}$

2. $\frac{2}{3} = \frac{8}{12}$

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

4. $\frac{5}{6} = \frac{15}{18}$

5. $\frac{3}{4} = \frac{12}{16}$

6. $\frac{7}{10} = \frac{21}{30}$

B. Prepare each pair.

7. $\frac{1}{3} + \frac{3}{4} = \frac{4}{12} + \frac{3}{12}$

8. $\frac{1}{2} = \frac{6}{10} - \frac{5}{10}$

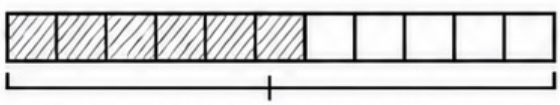
9. $\frac{2}{3} + \frac{3}{8} = \frac{16}{24} + \frac{9}{24}$

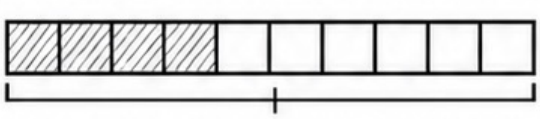
10. $\frac{5}{6} - \frac{1}{9} = \frac{15}{18} - \frac{2}{18}$

C. Circle the least common denominator.

11. $\frac{1}{4}$ and $\frac{2}{3}$ — 7 (12) 24

12. $\frac{3}{5}$ and $\frac{1}{10}$ (10) 20 50





Add Unlike Denominators

Name: _____

Find a common denominator.

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

Calculate. Simplify every answer.

1. $\frac{1}{4} + \frac{1}{3}$

2. $\frac{2}{5} + \frac{1}{2}$

3. $\frac{3}{8} + \frac{1}{4}$

4. $\frac{5}{6} + \frac{1}{9}$

5. $\frac{2}{3} + \frac{3}{10}$

6. $\frac{7}{12} + \frac{1}{8}$

7. $\frac{3}{4} + \frac{5}{6}$

8. $\frac{5}{9} + \frac{7}{12}$

Challenge: convert answers greater than one.

9. $\frac{7}{10} + \frac{9}{20}$

10. $\frac{11}{15} + \frac{4}{9}$

Add Unlike Denominators

Name: ANSWERS

Find a common denominator.

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

Calculate. Simplify every answer.

1. $\frac{1}{4} + \frac{1}{3}$

$\frac{3}{12} + \frac{4}{12} = \frac{7}{12}$

2. $\frac{2}{5} + \frac{1}{2}$

$\frac{4}{10} + \frac{5}{10} = \frac{}{1}$

3. $\frac{3}{8} + \frac{1}{4}$

$\frac{3}{8} + \frac{2}{8} = \frac{5}{8}$

4. $\frac{5}{} + \frac{1}{}$

$\frac{}{18} + \frac{}{18} = \frac{17}{18}$

5. $\frac{2}{3} + \frac{3}{10}$

$\frac{20}{30} \quad \frac{9}{30} = \frac{}{30}$

6. $\frac{7}{12} + \frac{1}{8}$

$\frac{14}{24} + \frac{3}{24} = \frac{17}{24}$

7. $\frac{3}{4} \quad \frac{5}{6}$

$\frac{9}{12} + \frac{10}{12} = \frac{19}{12} = 1\frac{7}{12}$

8. $\frac{5}{9} + \frac{7}{12}$

$\frac{20}{36} + \frac{21}{36} = \frac{41}{36} = 1\frac{5}{36}$

Challenge: convert answers greater than one.

9. $\frac{7}{10} + \frac{9}{20}$

$\frac{14}{20} + \frac{9}{20} = \frac{23}{20} = 1\frac{3}{20}$

10. $\frac{11}{15} + \frac{4}{9}$

$\frac{33}{45} + \frac{20}{45} = \frac{53}{45} = 1\frac{8}{45}$

Subtract Unlike Denominators

Name: _____

Find a common denominator.

$$\frac{5}{6} - \frac{1}{4} = \frac{10}{12} - \frac{3}{12} = \frac{7}{12}$$

Calculate. Simplify every answer.

1. $\frac{3}{4} - \frac{1}{3} =$ _____

2. $\frac{7}{10} - \frac{1}{4} =$ _____

3. $\frac{5}{6} - \frac{2}{9} =$ _____

4. $\frac{11}{12} - \frac{3}{8} =$ _____

5. $\frac{7}{9} - \frac{1}{6} =$ _____

6. $\frac{3}{5} - \frac{1}{10} =$ _____

7. $\frac{13}{15} - \frac{2}{5} =$ _____

8. $\frac{7}{8} - \frac{5}{12} =$ _____

Reason and explain.

9. Jonah says $\frac{3}{5} - \frac{1}{2} = \frac{2}{3}$. Explain his error and correct it.

10. Which is greater: $\frac{5}{6} - \frac{1}{4}$ or $\frac{3}{4} - \frac{1}{3}$? Show your working.

Subtract Unlike Denominators

Name: ANSWERS

Find a common denominator.

$$\frac{5}{6} - \frac{1}{4} = \frac{10}{12} - \frac{3}{12} = \frac{7}{12}$$

Calculate. Simplify every answer.

1. $\frac{3}{4} - \frac{1}{3} = \frac{9}{12} - \frac{4}{12} = \frac{5}{12}$

2. $\frac{7}{10} - \frac{1}{4} = \frac{14}{20} - \frac{5}{20} = \frac{9}{20}$

3. $\frac{5}{6} - \frac{2}{9} = \frac{15}{18} - \frac{4}{18} = \frac{11}{18}$

4. $\frac{11}{12} - \frac{3}{8} = \frac{22}{24} - \frac{9}{24} = \frac{13}{24}$

5. $\frac{7}{9} - \frac{1}{6} = \frac{14}{18} - \frac{3}{18} = \frac{11}{18}$

6. $\frac{4}{5} - \frac{3}{10} = \frac{8}{10} - \frac{3}{10} = \frac{5}{10} = \frac{1}{2}$

7. $\frac{13}{15} - \frac{2}{5} = \frac{13}{15} - \frac{6}{15} = \frac{7}{15}$

8. $\frac{7}{8} - \frac{5}{12} = \frac{21}{24} - \frac{10}{24} = \frac{11}{24}$

Reason and explain.

9. Jonah says $\frac{3}{5} - \frac{1}{2} = \frac{2}{3}$. Explain his error and correct it.

Jonah subtracted both denominators. Use tenths: $\frac{6}{10} - \frac{5}{10} = \frac{1}{10}$.

10. Which is greater: $\frac{5}{6} - \frac{1}{4}$ or $\frac{3}{4} - \frac{1}{3}$? Show your working.

$\frac{5}{6} - \frac{1}{4} = \frac{7}{12}$; $\frac{3}{4} - \frac{1}{3} = \frac{5}{12}$. Therefore, $\frac{5}{6} - \frac{1}{4}$ is greater.

Whole and Mixed Number Moves

Name: _____

Rename the whole before subtracting.

$$1 - \frac{3}{8} = \frac{8}{8} - \frac{3}{8} = \frac{5}{8}$$

A. Subtract from the whole.

1. $1 - \frac{2}{5}$ _____

2. $1 - \frac{7}{12}$ _____

3. $2 - \frac{3}{4}$ _____

4. $3 - \frac{5}{6}$ _____

B. Add, then convert answer greater than one.

5. $\frac{5}{8} + \frac{7}{8}$ _____

6. $\frac{7}{10} + \frac{9}{10}$ _____

7. $\frac{3}{4} + \frac{5}{6}$ _____

8. $\frac{11}{12} + \frac{5}{8}$ _____

C. Convert each number.

9. $\frac{9}{4}$ to a mixed number _____

10. $\frac{17}{6}$ to a mixed number _____

11. $2\frac{3}{5}$ to an improper fraction _____

12. $3\frac{1}{8}$ to an improper fraction _____

Whole and Mixed Number Moves

Name: ANSWERS

Rename the whole before subtracting.

$$1 - \frac{3}{8} = \frac{8}{8} - \frac{3}{8} = \frac{5}{8}$$

A. Subtract from the whole.

1. $1 - \frac{2}{5}$ $\frac{3}{5}$

2. $1 - \frac{7}{12}$ $\frac{5}{12}$

3. $2 - \frac{3}{4}$ $1\frac{1}{4}$

4. $3 - \frac{5}{6}$ $2\frac{1}{6}$

B. Add, then convert answers greater than one.

5. $\frac{5}{8} + \frac{7}{8}$ $\frac{12}{8}$ $1\frac{1}{2}$

6. $\frac{7}{10} + \frac{9}{10}$ $\frac{16}{10} = \frac{8}{5} = 1\frac{3}{5}$

7. $\frac{3}{4} + \frac{5}{6}$ $\frac{19}{12} = 1\frac{7}{12}$

8. $\frac{11}{12} + \frac{5}{8}$ $\frac{37}{24} = 1\frac{13}{24}$

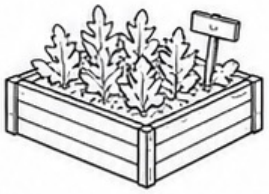
C. Convert each number.

9. $\frac{9}{4}$ to a mixed number $2\frac{1}{4}$

10. $\frac{17}{6}$ to a mixed number $2\frac{5}{6}$

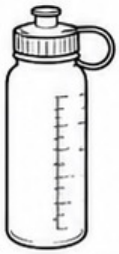
11. $2\frac{3}{5}$ to an improper fraction $\frac{13}{5}$

12. $3\frac{1}{8}$ to an improper fraction $\frac{25}{8}$



Fraction Problem Solving

Support and Core



Name: _____

1. Underline the question.	2. Choose the operation.	3. Make common denominators.	4. Solve and check.

1. A community garden uses $\frac{2}{5}$ of a bed for herbs and $\frac{1}{4}$ for flowers.

What fraction of the bed is planted?

Equation:	Working:	Answer:

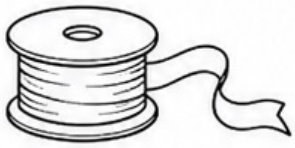
2. A cooler holds $\frac{7}{8}$ L of juice. Students pour o$\frac{1}{3}$

How much juice remains?

Equation:	W ng:	Answer:

3. N has m o bbon and uses $\frac{3}{10}$ m.

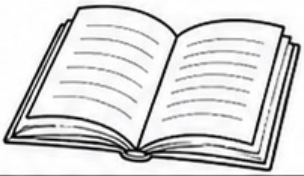
How uch ribbon remains?



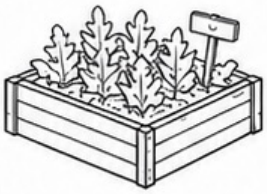
Equation:	Working:	Answer:

4. Asha reads $\frac{5}{12}$ of a novel on Monday and $\frac{1}{6}$ on Tuesday.

What fraction does she read altogether?

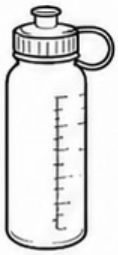


Equation:	Working:	Answer:



Fraction Problem Solving

Support and Core



Name: ANSWERS

1. Underline the question.	2. Choose the operation.	3. Make common denominators.	4. Solve and check.

1. A community garden uses $\frac{2}{5}$ of a bed for herbs and $\frac{1}{4}$ for flowers.

What fraction of the bed is planted?

Equation:	Working:	Answer:
$\frac{2}{5} + \frac{1}{4}$	$\frac{8}{20} + \frac{5}{20} = \frac{13}{20}$	$\frac{13}{20}$ of the bed

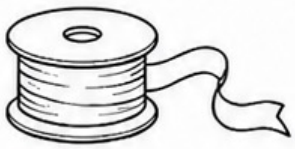
2. A cooler holds $\frac{7}{8}$ L of juice. Students pour o[illegible] $\frac{1}{3}$

How much juice remains?

Equation:	W[illegible]ng:	Answer:
$\frac{7}{8} - \frac{1}{3}$	$\frac{21}{24} - \frac{8}{24} = \frac{13}{24}$	$\frac{13}{24}$ L

3. M[illegible] has [illegible]m o[illegible]bbon and uses $\frac{3}{10}$ m.

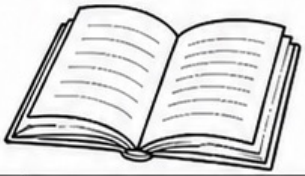
How [illegible]uch ribbon remains?



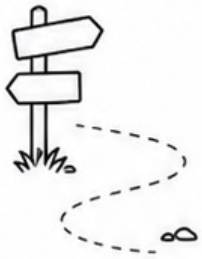
Equation:	Working:	Answer:
$1 - \frac{3}{10}$	$\frac{10}{10} - \frac{3}{10} = \frac{7}{10}$	$\frac{7}{10}$ m

4. Asha reads $\frac{5}{12}$ of a novel on Monday and $\frac{1}{6}$ on Tuesday.

What fraction does she read altogether?



Equation:	Working:	Answer:
$\frac{5}{12} + \frac{1}{6}$	$\frac{5}{12} + \frac{2}{12} = \frac{7}{12}$	$\frac{7}{12}$ of the novel



Fraction Problem Solving

Extension

Name: _____

1. A class hikes $\frac{3}{8}$ of a trail before lunch and $\frac{5}{12}$ after lunch. What fraction do they hike altogether? What fraction remains?

Plan:	Working:	Answer and explanation:

2. Ava has $1\frac{1}{2}$ L of paint. She uses $\frac{2}{3}$ L for a mural and $\frac{3}{8}$ L for a sign. How much paint remains?

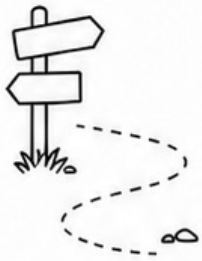
Plan:	Working:	Answer and explanation:

3. Recipe A uses $\frac{1}{2}$ cup oats and $\frac{1}{3}$ cup nuts. Recipe B uses $\frac{5}{6}$ cup oats and $\frac{1}{4}$ cup nuts. Which recipe uses more altogether? Explain.

Plan:	Working:	Answer and explanation:

4. Create and solve a word problem for $\frac{2}{3} + \frac{5}{8}$. Your context must make sense and include a unit.

My problem:	My solution:



Fraction Problem Solving

Extension

Name: ANSWERS

1. A class hikes $\frac{3}{8}$ of a trail before lunch and $\frac{5}{12}$ after lunch. What fraction do they hike altogether? What fraction remains?

Plan:	Working:	Answer and explanation:
Add the distances; subtract the total from 1.	$\frac{3}{8} + \frac{5}{12} = \frac{9}{24} + \frac{10}{24} = \frac{19}{24}$; $1 - \frac{19}{24} = \frac{5}{24}$	They hike $\frac{19}{24}$. A further $\frac{5}{24}$ remains.

2. Ava has $1\frac{1}{2}$ L of paint. She uses $\frac{2}{3}$ L for a mural and $\frac{3}{8}$ L for a [illegible]. How much paint remains?

Plan:	Working:	Answer and explanation:
Rename all amounts in twenty-fourths.	$1\frac{1}{2} = \frac{24}{24}$; $\frac{2}{3} = \frac{16}{24}$; $\frac{3}{8} = \frac{9}{24}$; $\frac{24}{24} - \frac{9}{24} = \frac{11}{24}$	$\frac{11}{24}$ L remains.

3. Recipe A uses [illegible] cup oats and $\frac{1}{3}$ cup nuts. Recipe B uses $\frac{5}{6}$ cup oats and $\frac{1}{4}$ cup nuts. Which recipe uses more altogether? Explain.

Plan:	Working:	Answer and explanation:
Find each recipe total and compare.	A: $\frac{3}{4} + \frac{1}{3} = \frac{9}{12} + \frac{4}{12} = \frac{13}{12}$. B: $\frac{5}{6} + \frac{1}{4} = \frac{10}{12} + \frac{3}{12} = \frac{13}{12}$.	Neither uses more. The totals are equal.

4. Create and solve a word problem for $\frac{2}{3} + \frac{5}{8}$. Your context must make sense and include a unit.

My problem:	My solution:
Noah walks $\frac{2}{3}$ km in the morning and $\frac{5}{8}$ km after lunch. How far does he walk altogether?	$\frac{2}{3} + \frac{5}{8} = \frac{16}{24} + \frac{15}{24} = \frac{31}{24} = 1\frac{7}{24}$ km

Fraction Match-Up Sort

Solve ea[illegible]ard. Place it in the best-matching zone.

1. Same Denominato[illegible]

Denominators already match. The [illegible]esult[illegible] under 1 and already simplified.

2. Make Equivalents

Denominators differ. Make equivalent fractions before solving.

3. Greater Than One

The result is an improper fraction or mixed number.

4. Needs Simplifying

The result can be reduced to an equivalent fraction.

Explain your choice to a partner.

Fraction Match-Up Cards

Cut on the dashed lines. Solve each card before sorting.

A1

$$\frac{2}{7} + \frac{3}{7}$$

A2

$$\frac{7}{9} - \frac{2}{9}$$

A3

$$\frac{4}{11} + \frac{5}{11}$$

A4

$$\frac{10}{13} - \frac{3}{13}$$

A5

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

A6

$$\frac{3}{4} - \frac{1}{6}$$

A7

$$\frac{2}{5} + \frac{1}{4}$$

A8

$$\frac{7}{8} - \frac{1}{3}$$

A9

$$\frac{3}{4} + \frac{2}{3}$$

A10

$$\frac{5}{6} + \frac{3}{5}$$

A11

$$\frac{7}{8} + \frac{5}{12}$$

A12

$$\frac{11}{12} + \frac{2}{3}$$

A13

$$\frac{2}{8} + \frac{4}{8}$$

A14

$$\frac{9}{12} - \frac{3}{12}$$

A15

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

A16

$$\frac{8}{10} - \frac{2}{10}$$

Build-a-Whole Trail

Solve, compare with one whole, then move.

$\frac{1}{1}$

Answer a card. Move 1 space if the result is less than 1, 2 spaces if it equals 1, or 3 spaces if it is greater than 1. First to Finish wins.

$\frac{1}{3}$ • $\frac{2}{5}$ • $\frac{3}{8}$

Build-a-Whole Operation Cards

Cut on the dashed lines. Solve and compare each result with 1.

G1 $\frac{1}{4} + \frac{1}{3}$	G2 $\frac{5}{6} - \frac{1}{4}$	G3 $\frac{2}{5} + \frac{1}{4}$	G4 $\frac{7}{8} - \frac{1}{3}$
G5 $\frac{3}{10} + \frac{2}{5}$	G6 $\frac{11}{12} - \frac{1}{6}$	G7 $\frac{1}{2} + \frac{2}{9}$	G8 $\frac{1}{5} - \frac{3}{8}$
G9 $\frac{1}{3} + \frac{2}{3}$	G10 $\frac{7}{8} + \frac{1}{8}$	G11 $\frac{5}{6} + \frac{1}{6}$	G12 $\frac{3}{4} + \frac{1}{4}$
G13 $\frac{9}{10} - \frac{1}{10}$	G14 $\frac{11}{12} + \frac{1}{12}$	G15 $\frac{7}{9} + \frac{2}{9}$	G16 $\frac{5}{8} + \frac{3}{8}$
G17 $\frac{3}{4} + \frac{2}{3}$	G18 $\frac{5}{6} + \frac{3}{5}$	G19 $\frac{7}{8} + \frac{5}{12}$	G20 $\frac{11}{12} + \frac{2}{3}$
G21 $\frac{4}{5} + \frac{3}{4}$	G22 $\frac{7}{10} + \frac{5}{6}$	G23 $\frac{2}{3} + \frac{7}{8}$	G24 $\frac{5}{9} + \frac{11}{12}$

$\frac{1}{2}$ $\frac{2}{3}$ $\frac{3}{4}$ $\frac{4}{5}$

Build-a-Whole: Rules and Record

MATERIALS

Game board, operation cards, one counter per player, scrap paper and pencils.

SET-UP

Shuffle the cards face down. Place every counter on START.

HOW TO PLAY

1. Draw one card. Solve it and simplify the result.
2. A partner checks the answer strip.
3. Move 1 space if the result is less than 2 spaces if it equals 1, or 3 spaces if it is greater than 1.
4. Put the card at the bottom of the pile. The first player to reach FINISH wins.

RECORD YOUR TURNS

Turn	Card	Common denominator	Answer	Move
1				
2				
3				
4				
5				
6				
7				
8				

ANSWER STRIP — FOLD BACK DURING PLAY

G1	$\frac{7}{12}$	G9	1	G17	$1\frac{5}{12}$
G2	$\frac{7}{12}$	G10	1	G18	$1\frac{13}{30}$
G3	$\frac{13}{20}$	G11	1	G19	$1\frac{7}{24}$
G4	$\frac{13}{24}$	G12	1	G20	$1\frac{7}{12}$
G5	$\frac{7}{10}$	G13	1	G21	$1\frac{11}{20}$
G6	$\frac{3}{4}$	G14	1	G22	$1\frac{8}{15}$
G7	$\frac{13}{18}$	G15	1	G23	$1\frac{13}{24}$
G8	$\frac{17}{40}$	G16	1	G24	$1\frac{17}{36}$

Adding and Subtracting Fractions Assessment

Skills

Name: _____ **Date:** _____ **Score:** _____ / 20

A. Equivalence and denominators — 4 marks

1. Complete: $\frac{2}{3} = \frac{\_}{12}$ [1]

2. Circle the least common denominator for $\frac{3}{4}$ and $\frac{5}{6}$: 10 12 24 [1]

3. Write a fraction equivalent to $\frac{5}{8}$ with a denominator of 24. [1]

4. Why must denominators match before adding or subtracting fractions? [1]

B. Calculate and simplify — 10 marks

5. $\frac{3}{7} + \frac{2}{7}$ [1]

6. $\frac{11}{12} - \frac{5}{12}$ [1]

7. $\frac{1}{3} + \frac{3}{8}$ [2]

8. $\frac{5}{6} - \frac{1}{4}$ [2]

9. $\frac{7}{10} + \frac{5}{6}$. Convert answer to a mixed number if greater than 1. [2]

10. $1 - \frac{5}{12}$ [2]

C. Convert and reason — 6 marks

11. Convert $\frac{13}{5}$ to a mixed number. [2]

12. Convert $2\frac{3}{4}$ to an improper fraction. [2]

13. Is $\frac{5}{6} + \frac{3}{4}$ less than, equal to or greater than 1? Explain without fully calculating. [2]

Adding and Subtracting Fractions Assessment

Skills

Name: ANSWERS Date: _____ Score: _____ / 20

A. Equivalence and denominators — 4 marks

1. Complete: $\frac{2}{3} = \frac{8}{12}$ [1]

2. Circle the least common denominator for $\frac{3}{4}$ and $\frac{5}{6}$: 10 (12) 24 [1]

3. Write a fraction equivalent to $\frac{5}{8}$ with a denominator of 24. [1]

$\frac{15}{24}$

4. Why must denominators match before adding or subtracting fractions? [1]

Fractions must name equal-sized parts; a common denominator makes the parts comparable.

B. Calculate and simplify — 10 marks

5. $\frac{3}{7} + \frac{2}{7}$ $\frac{5}{7}$ [1]

6. $\frac{11}{12} - \frac{5}{12}$ $\frac{6}{12} = \frac{1}{2}$ [1]

7. $\frac{1}{3} + \frac{3}{8}$ $\frac{8}{24} + \frac{9}{24} = \frac{17}{24}$ [2]

8. $\frac{5}{6} - \frac{1}{4}$ $\frac{10}{12} - \frac{3}{12} = \frac{7}{12}$ [2]

9. $\frac{7}{10} + \frac{5}{6}$ Convert answer to a mixed number if greater than 1. $\frac{21}{30} + \frac{25}{30} = \frac{46}{30} = \frac{23}{15} = 1\frac{8}{15}$ [2]

10. $1 - \frac{5}{12}$ $\frac{12}{12} - \frac{5}{12} = \frac{7}{12}$ [2]

C. Convert and reason — 6 marks

11. Convert $\frac{13}{5}$ to a mixed number. $2\frac{3}{5}$ [2]

12. Convert $2\frac{3}{4}$ to an improper fraction. $\frac{11}{4}$ [2]

13. Is $\frac{5}{6} + \frac{3}{4}$ less than, equal to or greater than 1? Explain without fully calculating. [2]

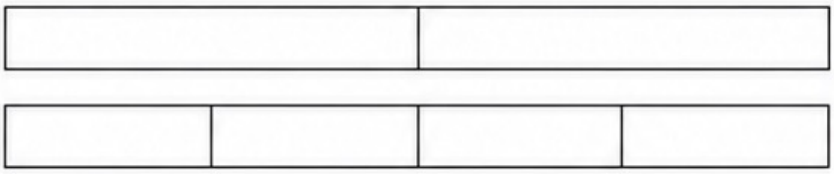
Greater than 1. Both $\frac{5}{6}$ and $\frac{3}{4}$ are greater than $\frac{1}{2}$, so their sum is greater than 1.

Adding and Subtracting Fractions Assessment

Reasoning and Application

Name: _____ Date: _____ Score: ____ / 20

1. Use fraction bars to model $\frac{1}{2} + \frac{1}{4}$. Then write the completed equation. [4]



Equation: _____

2. Sam says $\frac{2}{3} + \frac{1}{4} = \frac{3}{7}$. Explain the error and calculate the correct answer. [4]

3. A garden uses $\frac{3}{8}$ of its area for herbs and $\frac{1}{4}$ for flowers. What fraction is planted? What fraction remains? [4]

Working:	Answer:

4. A 1 $\frac{1}{4}$ km route is planned. A class walks $\frac{2}{5}$ km before recess and $\frac{3}{8}$ km after recess. How far remains? [4]

Working:	Answer:

5. Recipe A uses $\frac{5}{6}$ cup oats and $\frac{1}{4}$ cup seeds. Recipe B uses $\frac{3}{4}$ cup oats and $\frac{2}{5}$ cup seeds. Which recipe uses more altogether, and by how much? [4]

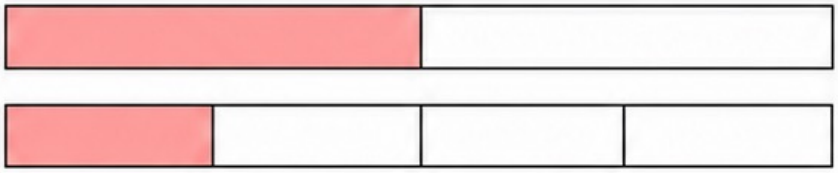
Working:	Answer and explanation:

Adding and Subtracting Fractions Assessment

Reasoning and Application

Name: ANSWERS Date: _____ Score: ____ / 20

1. Use fraction bars to model $\frac{1}{2} + \frac{1}{4}$. Then write the completed equation. [4]



Equation: $\frac{1}{2} + \frac{1}{4} = \frac{2}{4} + \frac{1}{4} = \frac{3}{4}$

2. Sam says $\frac{2}{3} + \frac{1}{4} = \frac{3}{7}$. Explain the error and calculate the correct answer. [4]

Sam added numerators and denominators. Use twelfths: $\frac{8}{12} + \frac{3}{12} = \frac{11}{12}$

3. A garden uses $\frac{3}{8}$ of its area for herbs and $\frac{1}{3}$ for flowers. What fraction is planted? What fraction remains? [4]

Working:	Answer:
$\frac{3}{8} + \frac{1}{3} = \frac{9}{24} + \frac{8}{24} = \frac{17}{24}$; $1 - \frac{17}{24} = \frac{7}{24}$	$\frac{17}{24}$ is planted. $\frac{7}{24}$ remains.

4. A $1\frac{1}{4}$ km route is planned. A class walks $\frac{2}{5}$ km before recess and $\frac{3}{8}$ km after recess. How far remains? [4]

Working:	Answer:
$1\frac{1}{4} = \frac{50}{40}$; $\frac{2}{5} = \frac{16}{40}$; $\frac{3}{8} = \frac{15}{40}$; $\frac{50}{40} - \frac{16}{40} - \frac{15}{40} = \frac{19}{40}$	$\frac{19}{40}$ km remains.

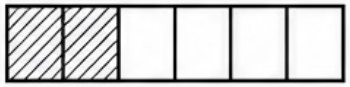
5. Recipe A uses $\frac{5}{6}$ cup oats and $\frac{1}{4}$ cup seeds. Recipe B uses $\frac{3}{4}$ cup oats and $\frac{2}{5}$ cup seeds. Which recipe uses more altogether, and by how much? [4]

Working:	Answer and explanation:
A: $\frac{5}{6} + \frac{1}{4} = \frac{13}{12} = \frac{65}{60}$ B: $\frac{3}{4} + \frac{2}{5} = \frac{23}{20} = \frac{69}{60}$ $\frac{69}{60} - \frac{65}{60} = \frac{4}{60} = \frac{1}{15}$	Recipe B uses $\frac{1}{15}$ cup more.

$\frac{3}{4}$

Adding and Subtracting Fractions Rubric

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

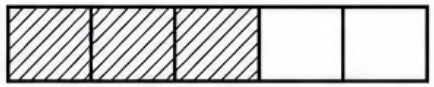


Student: _____ Date: _____

Criteria	Beginning	Developing	Applying	Proficient	Extending
Conceptual understanding	Identifies limited fraction parts.	Shows partial understanding of equivalence.	Uses common denominators with support.	Explains equivalence and common denominators.	Connects representations and justifies equivalence.
Accuracy	Makes frequent calculation errors.	Completes some simple calculations correctly.	Is mostly accurate with familiar calculations.	Calculates varied problems accurately and simplifies.	Solves complex calculations efficiently and checks.
Strategy	Records little or no workable strategy.	Chooses a strategy with prompting.	Uses a suitable standard strategy.	Selects and records an efficient strategy.	Compares methods and chooses strategically.
Representation and reasoning	Models or explanations are unclear.	Uses a simple model with limited explanation.	Uses models and gives partial reasoning.	Uses accurate models and logical reasoning.	Uses flexible representations and convincing justification.
Problem solving	Needs substantial support to begin.	Solves a single step with support.	Solves multi-step tasks with guidance.	Independently solves and interprets problems.	Generalises, creates and evaluates problems.

$\frac{5}{6} - \frac{1}{6} = \frac{4}{6}$

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



Adding and Subtracting Fractions

Learning Intentions

Today we will:

- add and subtract fractions with the same and different denominators
- use equivalent fractions to make equal-sized parts
- simplify answers and explain our reasoning

Success criteria: I can choose a common denominator and check whether my answer is reasonable.

Fraction Foundations

Numerator: how ny part ve ha

Denomin the size ach qual p

Equivale ractio ame th e amount.

2/4 = 3/6

parts lo different, but the value stays the same.

When Denominators Match

Add or subtract the num ator

Keep the denominator bec e th arts a alred the size.

+ 2/8 = 5/8

– 3/1 4/10 = 2/5

Always simplify when possible.

Why Denominators Must Match

You can only combine equal sized parts.

1/3 and 1/4 are different size pieces.

Change both in twelfths.

1/3 = 4/12 1/4 = 3/12

Now the pieces are comparable.

Find a Common Denominator

1. List multiples of each denominator.
2. Choose the least common multiple when it is efficient.
3. Build equivalent fractions.
4. Check that each fraction keeps the same value.

For 3 and 4, the least common denominator is 12.

Worked Example: Addition

Add 2/3 + 3/8

2/3 = 16

= 9/24

/24 + 9/24 = 25/24

= 1 1/24

The answer is just greater than 1, which is reasonable.

Worked Example: Subtracti

Subtract 5/6 − 1/4

5/6 = 10/1

1/4 = 3/12

0/12 2 = 7/12

Chec /6 is close to 1 and 1/4 is small, so 7/12 makes sense.

Simplify and Convert

Simplify by dividing numerator and denominator by the same factor.

8 = 2/3

If numerator is greater than denominator, convert to a mixed number:

19/12 = 1 7/12

Wholes and Mixed Numbers

Rename a whole before su tracti

1 – 3/ 8/ 3/8 =

ed n s, rename onl when needed.

2 – 2 1 1/4

se equ lent fractions before combining unlike denominators.

Use a Visual Check

Fraction bars and number lines show whether an answer is sensible.

Ask:

- Is the result below, equal to, or above 1?
- Should addition grow the amount?
- Should subtraction make it smaller?

A model catches many denominator mistakes.

Solve Fraction Problems

1. Understand the question and identify the units.
2. Decide whether to add or subtract.
3. Make common denominators and calculate.
4. Write an answer in context.
5. Estimate or model to check.

Keep units in the final answer.

Spot the Error

Mic[illegible]ites:

[illegible]3/5 + 1/2 [illegible]/7

She [illegible]ded the [illegible]enom[illegible]ators. That changes the size of the parts.

[illegible]ct method:

3/5 [illegible]2 = 6/10 + 5/10 = 11/10 = 1 1/10

Guided Review

Try these, then explain your strategy:

1. 7/12 – [illegible]

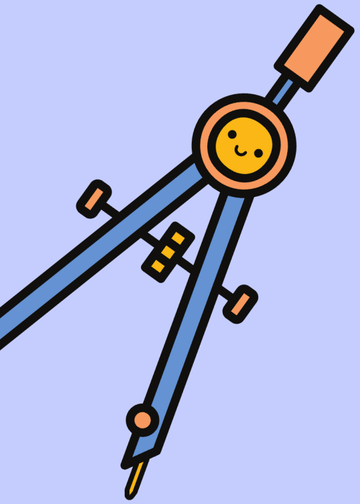
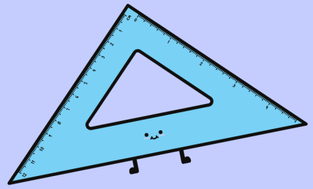
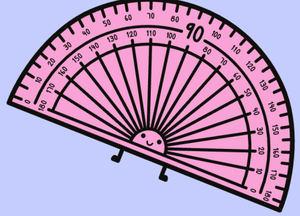
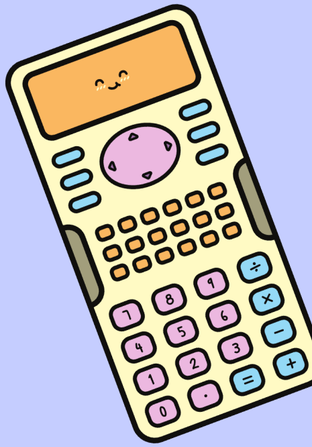
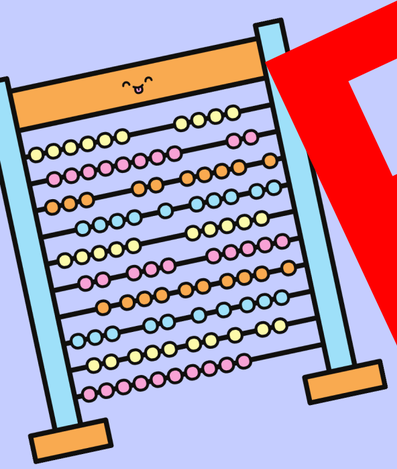
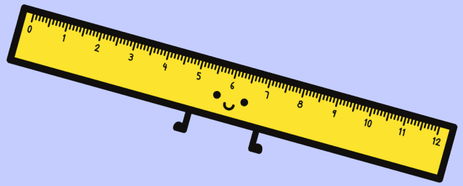
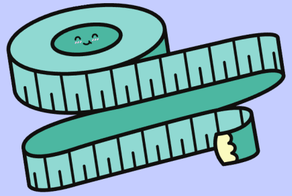
2. [illegible]4 + 5/6

3. 1 – 5/12

Create a word problem for 2/3 + 1/4.

Check denominators, simplify and use a mixed number when needed.

Well Done!


Adding and Subtracting Fractions Quiz

Question 1 – True or False

When two fractions have th[illegible]ame d[illegible]nom[illegible]ator, [illegible]d th[illegible] numerators a[illegible] keep t[illegible]e deno[illegible]tor.

[illegible]e or False?

Answer 1

T F

pa already the same size.

Add subtra the numerators and keep the denominator.

en simplify if possible.

Question 2 - Multiple Choice

Which fraction is equivalent to 3/4?

A. 4/6

B. 3/5

C. 6/8

D. 8/15

Answer 2

A. 4/

M ply bo nur rator an denominator of 2/3 by 2:

2/3 = 4/6

Question 3 – Short Answer

...lculate and ...ply.

5/9 ... 2/9 = ?

Answer 3

5/9 + 2/9 = /9

The de mina s ma n, a dd the numerators and keep 9.

Question 4 - Multiple Choice

What is 1/4 + 1/3

2/7

B. 5/12

C. 2/12

D. 7/12

Answer 4

D. 12

1/4 = 3/12

1/3 = 4/12

3/12 + 4/12 = 7/12

Question 5 - True or False

To add 1/2 + 1/3, add the denominators to make 2/6.

True or False?

Answer 5

FALS

Do t add denominators.

1/2 = , so 2/4 + 1/4 = 3/4.

Question 6 – Short Answer

...lculate and ...ply.

...7/16 ... 1/4 = ?

Answer 6

7/10 – 1/

14/20 – 5/20

/20

Question 7 - Multiple Choice

What is 1 - 3/8?

2/8

B. 3/8

C. 5/8

D. 7/8

Answer 7

C. [illegible]

[illegible]me the whole.

[illegible]3/8

8/8 − 3/8 = 5/8

Question 8 – Short Answer

Calculate. Convert an answer greater than 1.

3/4 × 5/6 = ?

Answer 8

3/4 +

= 9/ + 10/1

= 19/12

= 1 7/12

Question 9 – Multiple Choice

A student reads 2/5 of a book on Monday and 1/4 on Tuesday.

What fraction is read altogether?

A. 2/9 B. 7/20 C. 13/20 D. 3/4

Answer 9

C. 1 /20

2/5 = 8/20

1 /4 = 5/20

8/20 + 5/20 = 13/20

Question 10 – Short Answer

A jug holds 1 L.

If 2/3 is poured out, how much remains?

Answer 10

1 1/2 = 9/6

2/3 = 4/

– 4/6 = 5/6

5/6 L remains.

Well Done!