Add and Subtract Fractions with the Same Denominator

Exercise 4.1

No calculators are permitted in this exercise.

Name:

Worked Example for Simple Questions

Add these fractions:

$$\frac{2}{13}+\frac{3}{13}=\frac{5}{13}$$

← Add the numerators 2+3=5

← Denominator stays the same

Question 1

Add these fractions:

$$\frac{5}{12}+\frac{2}{12}=\frac{\square}{\square}$$

Question 2

Add these fractions:

$$\frac{2}{6}+\frac{3}{6}=\frac{\square}{\square}$$

Question 3

Add these fractions:

$$\frac{2}{11}+\frac{6}{11}=\frac{\square}{\square}$$

Question 4

Add these fractions:

$$\frac{2}{9}+\frac{3}{9}=\frac{\square}{\square}$$

Question 5

Add these fractions:

$$\frac{1}{10}+\frac{8}{10}=\frac{\square}{\square}$$

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Worked Example for Standard Questions

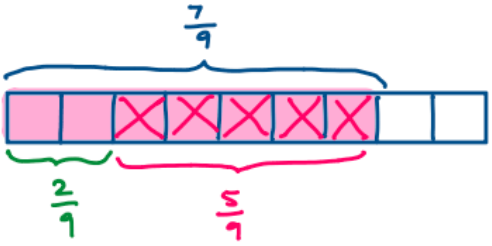
Question

Subtract these fractions:

$$\frac{7}{9} - \frac{5}{9} = \frac{2}{9}$$

Subtract the numerators: $7 - 5 = 2$

The denominator stays the same.



$$\frac{7}{9} - \frac{5}{9} = \frac{2}{9}$$

Question 6

Subtract these fractions:

$$\frac{8}{9} - \frac{3}{9} = \frac{\square}{\square}$$

Question 7

Subtract these fractions:

$$\frac{7}{8} - \frac{4}{8} = \frac{\square}{\square}$$

Question 8

Subtract these fractions:

$$\frac{9}{11} - \frac{7}{11} = \frac{\square}{\square}$$

Question 9

Subtract these fractions:

$$\frac{6}{7} - \frac{1}{7} = \frac{\square}{\square}$$

Question 10

Subtract these fractions:

$$\frac{3}{7} - \frac{1}{7} = \frac{\square}{\square}$$

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Exercise 4.3

No calculators are permitted in this exercise.

Worked Example for Simple Questions

Add these fractions:

$$\frac{5}{8}+\frac{1}{16}=\frac{11}{16}$$

* Make the denominators the same first.

$$\frac{5\times2}{8\times2}+\frac{1}{16}$$

$$=\frac{10}{16}+\frac{1}{16}$$

$$=\frac{10+1}{16}$$

$$=\frac{11}{16}$$

Question 1

Add these fractions:

$$\frac{1}{5}+\frac{7}{10}=\frac{\square}{\square}$$

Question 2

Add these fractions:

$$\frac{1}{5}+\frac{1}{15}=\frac{\square}{\square}$$

Question 3

Add these fractions:

$$\frac{3}{5}+\frac{2}{15}=\frac{\square}{\square}$$

Question 4

Add these fractions:

$$\frac{1}{8}+\frac{3}{4}=\frac{\square}{\square}$$

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Add and Subtract Fractions with Related Denominators

Question 5

Add these fractions:

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

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Worked Example for Standard Questions

Subtract the fractions:

$$\frac{7}{10} - \frac{2}{5} = \frac{3}{10}$$

1. Find the lowest common multiple of the denominators

10 : 10, 20, 30 ... L.C.M = 10

5 : 5, 10, 15 ...

2. Make the denominator of both fractions 10. (multiply $\frac{2}{5}$ by $\frac{2}{2}$)

$$\frac{7}{10} - \left(\frac{2}{5} \times \frac{2}{2}\right) = \frac{7}{10} - \frac{4}{10}$$

3. Subtract the numerators. The denominator stays the same.

$$\frac{7}{10} - \frac{4}{10} = \frac{3}{10}$$

Question 6

Subtract the fractions:

$$\frac{1}{2} - \frac{2}{6} = \frac{\square}{\square}$$

Question 7

Subtract the fractions:

$$\frac{5}{14} - \frac{1}{7} = \frac{\square}{\square}$$

Question 8

Subtract the fractions:

$$\frac{5}{8} - \frac{1}{4} = \frac{\square}{\square}$$

Question 9

Subtract the fractions:

$$\frac{2}{5} - \frac{1}{10} = \frac{\square}{\square}$$

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Add and Subtract Fractions with Related Denominators

Question 10

Subtract the fractions:

$$\frac{3}{4} - \frac{1}{8} = \frac{\square}{\square}$$

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Exercise 4.5

No calculators are permitted in this exercise.

Worked Example for Simple Questions

Which one is the correct first step to calculate the following?

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

A

$$\frac{3}{15} - \frac{1}{15}$$

B

$$\frac{9}{15} - \frac{5}{15}$$

* First you need to make the denominators the same → 15 is the lowest common multiple of 5 and 3.

$$\frac{3\times3}{5\times3} - \frac{1\times5}{3\times5}$$

$$= \frac{9}{15} - \frac{5}{15}$$

Question 1

Which one is the correct first step to calculate the following?

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

Circle the correct option

A

$$\frac{15}{20} - \frac{4}{20}$$

B

$$\frac{3}{20} - \frac{1}{20}$$

Question 2

Which one is the correct first step to calculate the following?

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

Circle the correct option

A

$$\frac{4}{15} - \frac{2}{15}$$

B

$$\frac{12}{15} - \frac{10}{15}$$

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Add and Subtract Fractions with Unrelated Denominators

Question 3

Which one is the correct first step to calculate the following?

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

Circle the correct option

A

$$\frac{3}{20} - \frac{1}{20}$$

B

$$\frac{12}{20} - \frac{5}{20}$$

Question 4

Which one is the correct first step to calculate the following?

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

Circle the correct option

A

$$\frac{8}{20} - \frac{5}{20}$$

B

$$\frac{2}{20} - \frac{1}{20}$$

Question 5

Which one is the correct first step to calculate the following?

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

Circle the correct option

A

$$\frac{8}{12} - \frac{3}{12}$$

B

$$\frac{2}{12} - \frac{1}{12}$$

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Worked Example for Standard Questions

Question

Calculate:

$$\frac{7}{8} - \frac{2}{5} = \frac{19}{40}$$

1. Find the lowest common denominator

   8: 8, 16, 24, 32, 40

   5: 5, 10, 15, 20, 25, 30, 35, 40

   L.C.M. = 40

2. Multiply each fraction to make the denominator 40.

$$\left(\frac{7}{8} \times \frac{5}{5}\right) - \left(\frac{2}{5} \times \frac{8}{8}\right) = \frac{35}{40} - \frac{16}{40}$$

3. Subtract the numerators.

   The denominator stays the same.

$$\frac{35}{40} - \frac{16}{40} = \frac{19}{40}$$

Question 6

Calculate:

$$\frac{2}{3} - \frac{1}{4} = \frac{\square}{\square}$$

Question 7

Calculate:

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

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Add and Subtract Fractions with Unrelated Denominators

Question 8

Calculate:

$$\frac{3}{4} + \frac{1}{6} = \frac{\square}{\square}$$

Question 9

Calculate:

$$\frac{2}{3} - \frac{1}{8} = \frac{\square}{\square}$$

Question 10

Calculate:

$$\frac{4}{5} + \frac{3}{4} = \frac{\square}{\square}$$

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Exercise 4.7

No calculators are permitted in this exercise.

Worked Example for Simple Questions

Multiply these fractions:

$$\frac{2}{3} \times \frac{6}{7} = \frac{12}{21}$$

$\frac{2}{3} \times \frac{6}{7} = \frac{2 \times 6}{3 \times 7}$ ← multiply the numerators

↖ multiply the denominators

$= \frac{12}{21}$

Question 1

Multiply these fractions:

$$\frac{1}{2} \times \frac{5}{7} = \frac{\square}{\square}$$

Question 2

Multiply these fractions:

$$\frac{5}{11} \times \frac{2}{3} = \frac{\square}{\square}$$

Question 3

Multiply these fractions:

$$\frac{3}{4} \times \frac{5}{7} = \frac{\square}{\square}$$

Question 4

Multiply these fractions:

$$\frac{4}{7} \times \frac{3}{5} = \frac{\square}{\square}$$

Question 5

Multiply these fractions:

$$\frac{3}{5} \times \frac{3}{8} = \frac{\square}{\square}$$

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Worked Example for Standard Questions

Multiply the fractions.

Give your answer in the simplest form.

$\frac{5}{7} \times \frac{3}{20} = \frac{3}{28}$

1. Simplify any numerator/denominator pairs.

$\frac{\cancel{5}^{1}}{7} \times \frac{3}{\cancel{20}_{4}} = \frac{1}{7} \times \frac{3}{4}$

2. Multiply the fractions

$\frac{1}{7} \times \frac{3}{4} = \frac{3}{28}$

Question 6

Multiply the fractions.

Give your answer in the simplest form.

$\frac{5}{8} \times \frac{7}{10} = \frac{\square}{\square}$

Question 7

Multiply the fractions.

Give your answer in the simplest form.

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

Question 8

Multiply the fractions.

Give your answer in the simplest form.

$\frac{5}{6} \times \frac{12}{7} = \frac{\square}{\square}$

Question 9

Multiply the fractions.

Give your answer in the simplest form.

$\frac{2}{3} \times \frac{1}{8} = \frac{\square}{\square}$

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Multiplying Fractions

Question 10

Multiply the fractions.

Give your answer in the simplest form.

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

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Exercise 4.9

No calculators are permitted in this exercise.

Worked Example for Simple Questions

Which one is the correct next step to calculate the following?

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

* First convert $2\frac{2}{5}$ into an improper fraction.

$2\frac{2}{5} = \frac{2\times5+2}{5}$

$= \frac{12}{5}$

* multiply the whole number by the denominator and add the numerator

A

$\frac{12}{5} \times \frac{1}{3}$

B

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

Question 1

Which one is the correct next step to calculate the following?

$2\frac{1}{5} \times \frac{3}{7}$

Circle the correct option

A

$\frac{11}{5} \times \frac{3}{7}$

B

$\frac{3}{5} \times \frac{3}{7}$

Question 2

Which one is the correct next step to calculate the following?

$1\frac{1}{4} \times \frac{1}{5}$

Circle the correct option

A

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

B

$\frac{5}{4} \times \frac{1}{5}$

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Multiplying Fractions with Mixed Numbers

Question 3

Which one is the correct next step to calculate the following?

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

Circle the correct option

A

$$\frac{7}{5} \times \frac{1}{4}$$

B

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

Question 4

Which one is the correct next step to calculate the following?

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

Circle the correct option

A

$$\frac{4}{3} \times \frac{4}{5}$$

B

$$\frac{10}{3} \times \frac{4}{5}$$

Question 5

Which one is the correct next step to calculate the following?

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

Circle the correct option

A

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

B

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

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Worked Example for Standard Questions

Multiply the fractions.

$$\frac{7}{8} \times 4\frac{4}{5} = \frac{21}{5}$$

1. Convert $4\frac{4}{5}$ to an improper fraction.

$$4\frac{4}{5} = \frac{4 \times 5 + 4}{5} = \frac{24}{5}$$

2. Re-write

$$\frac{7}{8} \times \frac{24}{5}$$

3. Simplify any numerator/denominator pairs that have common factors.

$$\frac{7}{8} \times \frac{24}{5} = \frac{7}{\cancel{8}_{1}} \times \frac{\cancel{24}^{3}}{5} = \frac{7}{1} \times \frac{3}{5}$$

4. Multiply the fractions

$$\frac{7}{1} \times \frac{3}{5} = \frac{21}{5}$$

Question 6

Multiply the fractions.

$$2\frac{1}{4} \times \frac{8}{11} = \frac{\square}{\square}$$

Question 7

Multiply the fractions.

$$2\frac{3}{4} \times 1\frac{3}{5} = \frac{\square}{\square}$$

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Multiplying Fractions with Mixed Numbers

Question 8

Multiply the fractions.

$$2\frac{2}{5} \times \frac{1}{6} = \frac{\square}{\square}$$

Question 9

Multiply the fractions.

$$3\frac{1}{4} \times \frac{8}{9} = \frac{\square}{\square}$$

Question 10

Multiply the fractions.

$$\frac{7}{9} \times 6\frac{3}{4} = \frac{\square}{\square}$$

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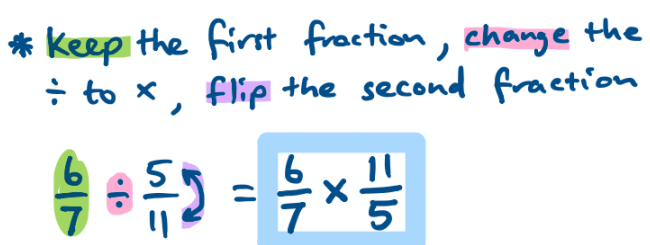
Exercise 4.11

No calculators are permitted in this exercise.

Worked Example for Simple Questions

Which one is the correct first step to calculate the following?

$$\frac{6}{7} \div \frac{5}{11}$$



A

$$\frac{6}{7} \times \frac{5}{11}$$

B

$$\frac{6}{7} \times \frac{11}{5}$$

Question 1

Which one is the correct first step to calculate the following?

$$\frac{3}{11} \div \frac{2}{3}$$

Circle the correct option

A

$$\frac{3}{11} \times \frac{2}{3}$$

B

$$\frac{3}{11} \times \frac{3}{2}$$

Question 2

Which one is the correct first step to calculate the following?

$$\frac{1}{10} \div \frac{2}{3}$$

Circle the correct option

A

$$\frac{1}{10} \times \frac{2}{3}$$

B

$$\frac{1}{10} \times \frac{3}{2}$$

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Question 3

Which one is the correct first step to calculate the following?

$$\frac{5}{11} \div \frac{2}{7}$$

Circle the correct option

A

$$\frac{5}{11} \times \frac{2}{7}$$

B

$$\frac{5}{11} \times \frac{7}{2}$$

Question 4

Which one is the correct first step to calculate the following?

$$\frac{4}{11} \div \frac{1}{5}$$

Circle the correct option

A

$$\frac{4}{11} \times \frac{5}{1}$$

B

$$\frac{4}{11} \times \frac{1}{5}$$

Question 5

Which one is the correct first step to calculate the following?

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

Circle the correct option

A

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

B

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

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Worked Example for Standard Questions

Divide the fractions:

$$\frac{2}{5} \div \frac{3}{7} = \frac{14}{15}$$

1. Rewrite as a multiplication

$\frac{2}{5} \div \frac{3}{7} = \frac{2}{5} \times \frac{7}{3}$

↖ reciprocal of $\frac{3}{7}$

2. Multiply the fractions

$\frac{2}{5} \times \frac{7}{3} = \frac{14}{15}$

Question 6

Divide the fractions:

$$\frac{2}{5} \div \frac{3}{11} = \frac{\square}{\square}$$

Question 7

Divide the fractions:

$$\frac{4}{3} \div \frac{5}{11} = \frac{\square}{\square}$$

Question 8

Divide the fractions:

$$\frac{4}{7} \div \frac{3}{10} = \frac{\square}{\square}$$

Question 9

Divide the fractions:

$$\frac{5}{6} \div \frac{2}{7} = \frac{\square}{\square}$$

Question 10

Divide the fractions:

$$\frac{2}{3} \div \frac{1}{10} = \frac{\square}{\square}$$

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