Worksheet - Fractions: equivalent, mixed numbers and improper

Year: Year 5 · 20

Show your working.

Question 1

Question 1 – Missing numerators *(Section A · Practice)*

Find the missing number in each pair of equivalent fractions.

a. $\frac{2}{3} = \frac{?}{12}$
b. $\frac{7}{8} = \frac{?}{24}$
c. $\frac{3}{5} = \frac{?}{20}$
d. $\frac{5}{6} = \frac{?}{18}$

Question 2

Question 2 – Equivalent fractions *(Section A · Practice)*

Write three fractions that are equivalent to $\frac{1}{2}$ and three that are equivalent to $\frac{3}{4}$.

Question 3

Question 3 – Simplify *(Section A · Practice)*

Write each fraction in its simplest form.

a. $\frac{6}{8}$
b. $\frac{12}{18}$
c. $\frac{15}{25}$
d. $\frac{24}{36}$
e. $\frac{14}{28}$

Question 4

Question 4 – Improper fractions to mixed numbers *(Section A · Practice)*

Write each improper fraction as a mixed number.

a. $\frac{7}{4}$
b. $\frac{11}{3}$
c. $\frac{17}{5}$
d. $\frac{23}{6}$

Question 5

Question 5 – Mixed numbers to improper fractions *(Section A · Practice)*

Write each mixed number as an improper fraction.

a. $2\frac{1}{3}$
b. $3\frac{3}{4}$
c. $4\frac{2}{5}$
d. $5\frac{5}{6}$

Question 6

Question 6 – Compare fractions *(Section A · Practice)*

Write < or > between each pair of fractions. Use a common denominator.

a. $\frac{3}{4} \square \frac{5}{8}$
b. $\frac{7}{12} \square \frac{2}{3}$
c. $\frac{4}{5} \square \frac{7}{10}$
d. $\frac{5}{6} \square \frac{11}{12}$

Question 7

Question 7 – Pizza party *(Section B · Real-life practice)*

Mia orders pizzas for her birthday. Each pizza is cut into 8 equal slices. The friends eat 19 slices altogether.

a. Write 19 slices as an improper fraction of a pizza, with denominator 8.
b. Write your answer to (a) as a mixed number. What does it tell you about the pizzas?
c. Mia's mum says that 3 slices is the same as $\frac{3}{8}$ of a pizza. How many slices are $\frac{1}{4}$ of a pizza? Write it as an equivalent fraction.
d. At the end there are $\frac{5}{8}$ of a pizza left over. Mia puts the pieces in a box. How many slices are in the box?

Question 8

Question 8 – Lengths of ribbon *(Section B · Real-life practice)*

Art class has four pieces of ribbon. Their lengths are $\frac{7}{4}$ m, $1\frac{1}{2}$ m, $\frac{5}{4}$ m and $1\frac{3}{4}$ m.

a. Write $\frac{7}{4}$ m as a mixed number and $1\frac{1}{2}$ m as an improper fraction.
b. Which two pieces are the same length?
c. Put the four lengths in order, longest first.
d. The longest piece is cut in half. How long is each half? Write it as a fraction of a metre.

Question 9

Question 9 – The chocolate bar *(Section B · Real-life practice)*

A chocolate bar has 24 squares. Ravi eats 6 squares, Jo eats 8 squares and Lily eats 4 squares. The rest are left in the cupboard.

a. What fraction of the bar does each person eat? Write the fractions in their simplest form.
b. Who eats the most and who eats the least?
c. What fraction of the bar is left?
d. Show that $\frac{1}{3}$ is equivalent to $\frac{8}{24}$.

Question 10

Question 10 – Cooking with cups *(Section B · Real-life practice)*

Noor is baking. Her recipe needs $\frac{5}{4}$ cups of flour, $\frac{7}{3}$ cups of milk and $\frac{9}{2}$ cups of oats.

a. Write each amount as a mixed number.
b. Which ingredient is the biggest amount?
c. Noor says that $\frac{5}{4}$ cups is the same as $\frac{10}{8}$ cups. Is she right?
d. Write $3\frac{1}{2}$ cups as an improper fraction.

Question 11

Question 11 – Laps of the track *(Section B · Real-life practice)*

At sports club, four runners run laps of the track. Amy runs $\frac{13}{4}$ laps, Ben runs $3\frac{1}{2}$ laps, Cal runs $\frac{10}{3}$ laps and Dee runs $3\frac{1}{4}$ laps.

a. Write $\frac{13}{4}$ laps and $\frac{10}{3}$ laps as mixed numbers.
b. Who ran the furthest and who ran the shortest distance?
c. Put the four distances in order, shortest first.
d. How many complete laps did Cal run?

Question 12

Question 12 – Jugs of orange juice *(Section B · Real-life practice)*

Ben has two jugs of orange juice. The red jug holds $\frac{3}{4}$ litre and the blue jug holds $\frac{5}{8}$ litre.

a. Write $\frac{3}{4}$ with denominator 8.
b. Which jug holds more juice?
c. How much more does it hold? Give the answer as a fraction of a litre.
d. Ben pours the juice from both jugs into one bottle. How much juice is in the bottle? Write it as an improper fraction and a mixed number.

Question 13

Question 13 – Pocket money *(Section B · Real-life practice)*

Lena gets £24 pocket money each month. She spends $\frac{3}{8}$ of it on books, saves $\frac{1}{4}$ of it and uses the rest for presents.

a. Write $\frac{1}{4}$ as an equivalent fraction with denominator 8.
b. How much does she spend on books and how much does she save?
c. What fraction of the money is left for presents? How many pounds is that?
d. Lena says that she spends more on books than she saves. Is she right?

Question 14

Question 14 – Class survey *(Section B · Real-life practice)*

Mr Evans asks his class of 24 pupils how they get to school. The results are in the table.

Way to school	Pupils	Fraction of the class
Walk	12	
Bus	6	
Car	4	
Cycle	2	

a. Write each fraction of the class. Give each answer in its simplest form.
b. What fraction of the class does not walk?
c. Which two ways of travelling together make $\frac{3}{4}$ of the class?
d. Is the fraction that cycle bigger or smaller than $\frac{1}{10}$? Explain.

Question 15

Question 15 – The birthday cakes *(Section C · Problem solving)*

At a party there are three round cakes of the same size. The first cake is cut into 8 slices, the second into 12 slices and the third into 6 slices. Four children each take some cake.

Child	Cake	Amount taken
Asha	First	5 slices
Ben	Second	8 slices
Cara	Third	4 slices
Dev	First	2 slices

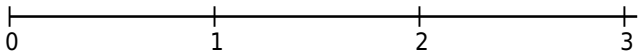
a. Write the fraction of a cake taken by each child.
b. Write each fraction in its simplest form.

c. Order the fractions from the smallest to the biggest.
d. Who took the most cake? Explain how you know.
e. How much of the first cake is left after Asha and Dev have taken their slices? Write it as a fraction.

Question 16

Question 16 – Fractions on a number line *(Section C · Problem solving)*

Here is a number line from 0 to 3.



Otto marks six fractions on the number line: $\frac{5}{2}$, $\frac{7}{4}$, $1\frac{1}{3}$, $\frac{11}{6}$, $2\frac{3}{4}$ and $\frac{9}{4}$.

a. Write each improper fraction as a mixed number.
b. Which of the six numbers are between 1 and 2?
c. Which is the biggest number? Which is the smallest?
d. Put all six numbers in order, smallest first. Use a common denominator of 12.
e. How many of the six numbers are bigger than 2?

Question 17

Question 17 – Pizza orders *(Section C · Problem solving)*

A pizza restaurant sells pizzas cut into 12 slices. In one evening the customers eat $\frac{47}{12}$ pizzas on Friday, $3\frac{5}{6}$ pizzas on Saturday and $\frac{35}{12}$ pizzas on Sunday.

a. Write $\frac{47}{12}$ and $\frac{35}{12}$ as mixed numbers.
b. Write $3\frac{5}{6}$ as an improper fraction with denominator 6, and as an equivalent fraction with denominator 12.
c. On which day were the most pizzas eaten? Order the days from most to fewest.
d. How many slices were eaten on Saturday?
e. The restaurant has 12 whole pizzas ready. Is that enough for all three days together? Explain.

Question 18

Question 18 – Fractions between fractions *(Section C · Problem solving)*

Otto is looking for fractions that lie between other fractions.

a. Write $\frac{1}{2}$ and $\frac{3}{4}$ with denominator 12.
b. Write a fraction with denominator 12 that lies between $\frac{1}{2}$ and $\frac{3}{4}$. How many are there?
c. Write $\frac{2}{3}$ as a fraction with denominator 12. Is it between $\frac{1}{2}$ and $\frac{3}{4}$?
d. Write a fraction between $\frac{1}{3}$ and $\frac{1}{2}$. Show your working with a common

denominator.
e. Explain why there are always more fractions between any two fractions.

Question 19

Question 19 – The football season *(Section C · Problem solving)*

A football team plays 90 minutes in a match. Coach Ali looks at how the team used the time.

a. In the first half the team had the ball for 18 minutes. What fraction of the match is that? Write it in its simplest form.
b. In the second half the ball was with the team for $\frac{7}{15}$ of the match. How many minutes is that?
c. Which half had more possession time?
d. In total the team had the ball for 18 + 42 = 60 minutes. What fraction of the match is that in simplest form?
e. Coach Ali says the team had the ball for $\frac{2}{3}$ of the match and the other team for $\frac{1}{3}$. Is he right? Explain.

Question 20

Question 20 – Challenge: fraction detective *(Section D · Challenge)*

Otto is investigating the fraction $\frac{12}{18}$.

a. Simplify $\frac{12}{18}$. List all the fractions equivalent to it that have a denominator of 10 or less.
b. A fraction is equivalent to $\frac{2}{5}$ and the numerator and denominator add up to 35. Find the fraction.
c. How many improper fractions with denominator 7 lie strictly between 3 and 4? List them and write each as a mixed number.