

SIGMADOJO · GRADE 3

Fractions Focus

A gentle walkthrough & a 24-question exam

Part 1 walks through fractions from the very beginning, with drawings. Part 2 is a 24-question exam that starts easy and slowly builds to harder, ISEE-style reasoning questions. Work through the lesson together first, then let your child try the exam. The answer key at the back explains every question.

1 · What is a fraction?

A fraction is **equal parts of one whole** — like slices of one pizza. Split a bar in 2 and shade 1: that is **one half ($\frac{1}{2}$)**.



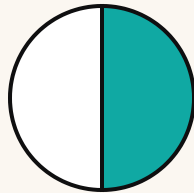
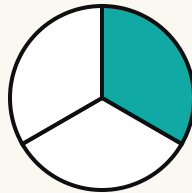
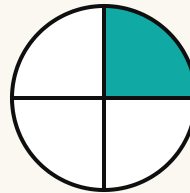
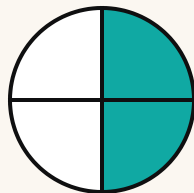
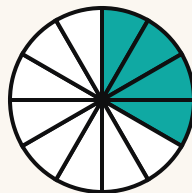
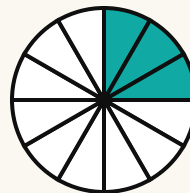
one whole

 $\frac{1}{2}$ (one half)

2 · The top and bottom numbers

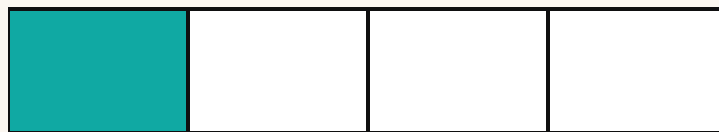
The **bottom** = how many equal parts in all. The **top** = how many you count. So $\frac{1}{4}$ means 4 equal parts, count 1.

Surprise: $\frac{2}{4}$, $\frac{4}{12}$, $\frac{3}{12}$ shade the same as $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$ — one piece can have more than one name.

 $\frac{1}{2}$  $\frac{1}{3}$  $\frac{1}{4}$  $\frac{2}{4}$  $\frac{4}{12}$  $\frac{3}{12}$

3 • The parts must be EQUAL

The pieces must be the **same size**. 4 equal parts = fourths. Unequal parts are *not* fourths.



fair fourths ✓



these are thirds ($1/3$)

4 • Fractions of a group

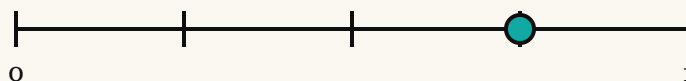
A fraction can also mean **part of a group**. 2 of these 6 dots are shaded → $2/6$.



$2/6$ of the dots are shaded

5 • Fractions live on the number line

Split the line from 0 to 1 into equal steps. This dot sits on the 3rd of 4 steps → $3/4$.



the dot is at $3/4$

6 · Different fractions, same amount

Some fractions look different but are the **same amount** — **equivalent**. $\frac{1}{2}$ and $\frac{2}{4}$ shade the same, so $\frac{1}{2} = \frac{2}{4}$.

$\frac{1}{2}$



$\frac{2}{4}$



same shaded amount

7 · Comparing fractions

Same bottom: more pieces wins $\rightarrow 3/5 > 2/5$.

Same top: fewer pieces wins (bigger pieces) $\rightarrow 1/4 > 1/6$.

Different bottoms? Rename so they match, then compare tops: $1/4 = 6/24$, $1/6 = 4/24 \rightarrow 1/4 > 1/6$.

$3/5$

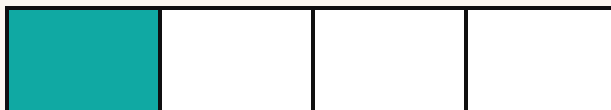


$2/5$



same bottom $\rightarrow$ more pieces wins

$1/4$



$1/6$



same top $\rightarrow$ bigger pieces win

$$\begin{array}{rcl} \frac{1}{4} & \times & \frac{6}{6} = \frac{6}{24} \\ \frac{1}{6} & \times & \frac{4}{4} = \frac{4}{24} \end{array}$$

rename both to 24ths

$6/24$



$4/24$



now 6 beats 4, so $1/4 > 1/6$

8 • The whole — adding and subtracting

Shade **all** the parts = one whole: $\frac{4}{4} = 1$.

Same bottom: add or subtract the tops, keep the bottom. $\frac{1}{4} + \frac{2}{4} = \frac{3}{4}$, and $\frac{3}{4} - \frac{1}{4} = \frac{2}{4}$.



$$\frac{4}{4} = 1 \text{ whole}$$



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



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

9 • Whole numbers are fractions too

Any whole number is that number **over 1**: $1 = \frac{1}{1}$, $2 = \frac{2}{1}$, $3 = \frac{3}{1}$.

If the top divides evenly by the bottom, it is a whole number: $\frac{8}{2} = 4$, $\frac{50}{10} = 5$.



$$\frac{1}{1} = 1$$



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



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



$$\frac{8}{2} = 4 \text{ (eight halves)}$$

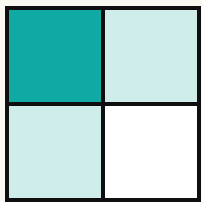


$$\frac{50}{10} = 5 \text{ (fifty tenths)}$$

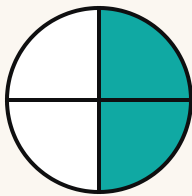
10 · A peek ahead: multiply & divide

Fractions can also **multiply** and **divide**. Half of a half is a quarter: $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$.

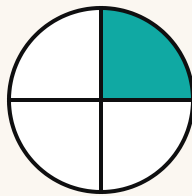
You don't need these yet — naming, comparing, adding, and subtracting is a great start! 🍌



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



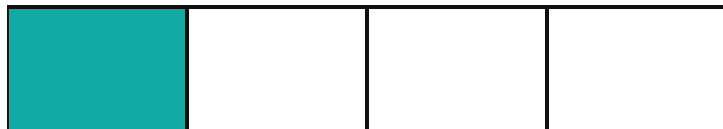
$\frac{1}{2}$ a pizza...



...shared by 2 = $\frac{1}{4}$ each

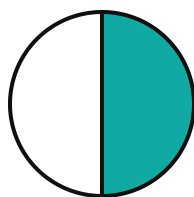
Read each drawing first, then choose the best answer. Take your time — there is no clock here. Questions start gentle and get harder toward the end. Circle your answer.

- 1 What fraction of the bar is shaded?



- A $\frac{1}{4}$ B $\frac{1}{3}$
C $\frac{1}{2}$ D $\frac{3}{4}$

- 2 What fraction of the circle is shaded?



- A $\frac{1}{3}$ B $\frac{2}{2}$
C $\frac{1}{2}$ D $\frac{1}{4}$

- 3 A pizza is cut into 3 equal slices. You eat 1 slice. What fraction of the pizza did you eat?

- A $\frac{1}{2}$ B $\frac{1}{3}$
C $\frac{3}{1}$ D $\frac{1}{4}$

- 4 What fraction of the circles are shaded?



- A $\frac{2}{4}$ B $\frac{4}{6}$
C $\frac{6}{2}$ D $\frac{2}{6}$

- 5 What fraction of the bar is shaded?



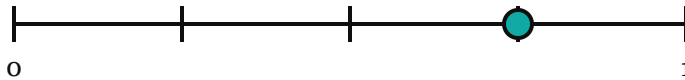
- A $\frac{3}{4}$ B $\frac{4}{4}$
C $\frac{1}{4}$ D $\frac{0}{4}$
-

- 6 What fraction of the bar is shaded?



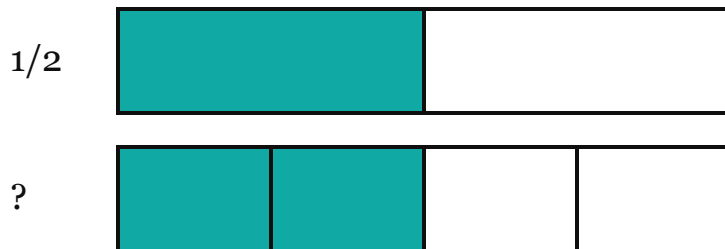
- A $\frac{1}{3}$ B $\frac{2}{2}$
C $\frac{3}{2}$ D $\frac{2}{3}$
-

- 7 The number line from 0 to 1 is split into equal steps. Which fraction does the dot show?



- A $\frac{3}{4}$ B $\frac{1}{4}$
C $\frac{3}{3}$ D $\frac{4}{3}$
-

- 8 The top bar shows $\frac{1}{2}$. Which fraction shades the SAME amount as the bottom bar?



- A $\frac{1}{4}$ B $\frac{1}{3}$
C $\frac{2}{4}$ D $\frac{3}{4}$
-

9 Which fraction is greater: $\frac{3}{5}$ or $\frac{2}{5}$?

$\frac{3}{5}$



$\frac{2}{5}$



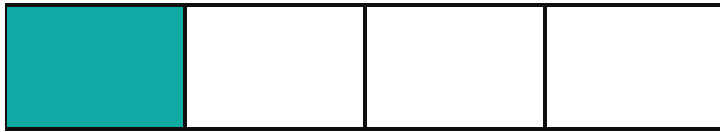
A $\frac{2}{5}$

B They are equal

C $\frac{3}{5}$

D You cannot tell

10 The bar shows $\frac{1}{4}$ shaded. What fraction of the bar is NOT shaded?



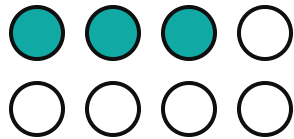
A $\frac{3}{4}$

B $\frac{1}{4}$

C $\frac{4}{4}$

D $\frac{1}{3}$

11 What fraction of the dots are shaded?



A $\frac{3}{5}$

B $\frac{5}{8}$

C $\frac{8}{3}$

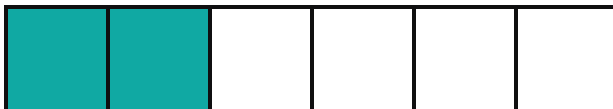
D $\frac{3}{8}$

12 $\frac{1}{3}$ is the same amount as how many sixths?

$\frac{1}{3}$



$\frac{?}{6}$



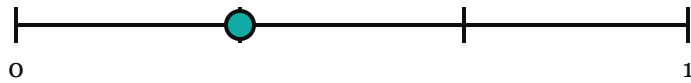
A $\frac{1}{6}$

B $\frac{2}{6}$

C $\frac{3}{6}$

D $\frac{4}{6}$

- 13** Which fraction does the dot on the number line show?

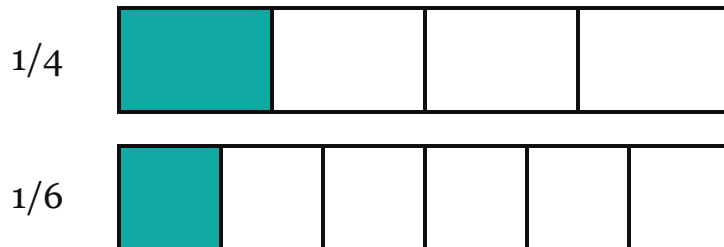


- A** $1/2$ **B** $2/3$
C $3/1$ **D** $1/3$

- 14** Maya has 6 stickers. She gives $\frac{1}{3}$ of them to her brother. How many stickers is that?

- A** 3 **B** 2
C 1 **D** 4

- 15** Which is bigger: $\frac{1}{4}$ or $\frac{1}{6}$?



- A** $\frac{1}{6}$
- B** They are equal
- C** $\frac{1}{4}$
- D** $\frac{1}{6}$, because 6 is bigger

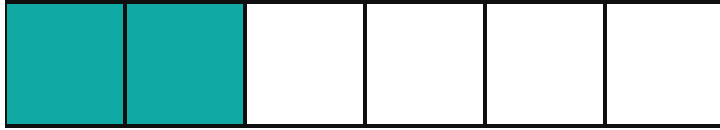
- 16** Which of these fractions is GREATER than $\frac{1}{2}$?

- A** $\frac{5}{8}$ **B** $\frac{3}{8}$
C $\frac{2}{5}$ **D** $\frac{1}{3}$

- 17** What is $\frac{1}{5} + \frac{2}{5}$?

- A** $\frac{3}{5}$ **B** $\frac{3}{10}$
C $\frac{2}{5}$ **D** $\frac{1}{5}$

- 18 The bar shows $\frac{2}{6}$ shaded. How many MORE sixths must be shaded to make one whole bar?



- A $\frac{6}{6}$ B $\frac{2}{6}$
C $\frac{3}{6}$ D $\frac{4}{6}$
-

- 19 There are 12 apples in a basket, and $\frac{3}{4}$ of them are red. How many apples are red?

- A 3 B 9
C 4 D 8
-

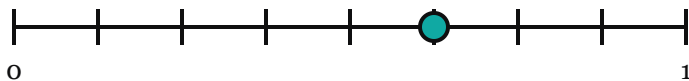
- 20 Which list of fractions is ordered from SMALLEST to LARGEST?

- A $\frac{3}{4}$, $\frac{1}{2}$, $\frac{1}{4}$ B $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$
C $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ D $\frac{1}{4}$, $\frac{3}{4}$, $\frac{1}{2}$
-

- 21 Which fraction is NOT equal to $\frac{1}{2}$?

- A $\frac{2}{4}$ B $\frac{3}{6}$
C $\frac{2}{5}$ D $\frac{4}{8}$
-

- 22 The number line from 0 to 1 is split into 8 equal steps. Which fraction does the dot show?



- A $\frac{3}{8}$ B $\frac{5}{8}$
C $\frac{5}{6}$ D $\frac{4}{8}$
-

- 23 A cake is cut into 8 equal pieces. A family eats 5 of the pieces. What fraction of the cake is LEFT?

- A $\frac{5}{8}$ B $\frac{3}{5}$
C $\frac{8}{3}$ D $\frac{3}{8}$
-

24 Sam says, " $\frac{1}{3}$ of a pizza is more than $\frac{1}{2}$, because 3 is bigger than 2." Is Sam right?

A No — $\frac{1}{2}$ is bigger, because halves are bigger pieces than thirds

B Yes — 3 is bigger than 2, so $\frac{1}{3}$ is bigger

C Yes — more pieces always means more pizza

D They are exactly equal

ANSWER KEY & EXPLANATIONS

- 1 A** The bar has 4 equal parts and 1 is shaded, so 1 out of 4 = $\frac{1}{4}$.
-
- 2 C** The circle is cut into 2 equal parts and 1 is shaded: $\frac{1}{2}$ (one half).
-
- 3 B** 3 equal slices means thirds; eating 1 slice is 1 out of 3 = $\frac{1}{3}$.
-
- 4 D** There are 6 circles in all and 2 are shaded, so 2 out of 6 = $\frac{2}{6}$.
-
- 5 B** All 4 of the 4 parts are shaded. $\frac{4}{4}$ is the whole bar, which equals 1.
-
- 6 D** 3 equal parts, 2 shaded: 2 out of 3 = $\frac{2}{3}$.
-
- 7 A** There are 4 equal steps from 0 to 1, and the dot is on the 3rd step: $\frac{3}{4}$.
-
- 8 C** $\frac{1}{2}$ and $\frac{2}{4}$ cover the exact same amount, so they are equivalent: $\frac{1}{2} = \frac{2}{4}$.
-
- 9 C** Same bottom number means same-size pieces, so more pieces wins: $\frac{3}{5} > \frac{2}{5}$.
-
- 10 A** 1 part is shaded and 3 parts are not, so $\frac{3}{4}$ is not shaded. ($\frac{1}{4} + \frac{3}{4} = 1$.)
-
- 11 D** 8 dots in all, 3 shaded: 3 out of 8 = $\frac{3}{8}$.
-
- 12 B** Cutting each third into 2 makes sixths; $\frac{1}{3}$ lines up with $\frac{2}{6}$, so $\frac{1}{3} = \frac{2}{6}$.
-
- 13 D** 0 to 1 is split into 3 equal steps and the dot is on the 1st step: $\frac{1}{3}$.
-
- 14 B** $\frac{1}{3}$ of 6 means split 6 into 3 equal groups: $6 \div 3 = 2$ in each group. So $\frac{1}{3}$ of 6 = 2.
-
- 15 C** Same top (1 piece each), but fourths are bigger pieces than sixths. Fewer pieces = bigger pieces, so $\frac{1}{4} > \frac{1}{6}$.
-
- 16 A** Half of 8 is 4, so $\frac{4}{8} = \frac{1}{2}$. $\frac{5}{8}$ is more than $\frac{4}{8}$, so $\frac{5}{8} > \frac{1}{2}$. The others are all less than half.
-
- 17 A** Same bottom number: add the tops and keep the bottom. $1 + 2 = 3$, so $\frac{1}{5} + \frac{2}{5} = \frac{3}{5}$.
-
- 18 D** A whole is $\frac{6}{6}$. You already have $\frac{2}{6}$, and $\frac{6}{6} - \frac{2}{6} = \frac{4}{6}$ more.
-
- 19 B** Split 12 into 4 equal groups: $12 \div 4 = 3$ in each. $\frac{3}{4}$ means 3 of those groups: $3 \times 3 = 9$.
-
- 20 C** On a number line $\frac{1}{4}$ comes first, then $\frac{1}{2}$ (which is $\frac{2}{4}$), then $\frac{3}{4}$. So $\frac{1}{4} < \frac{1}{2} < \frac{3}{4}$.
-
- 21 C** $\frac{2}{4}$, $\frac{3}{6}$, and $\frac{4}{8}$ all equal $\frac{1}{2}$ (the top is exactly half the bottom). But half of 5 is 2.5, not 2, so $\frac{2}{5}$ is less than $\frac{1}{2}$.
-
- 22 B** There are 8 equal steps and the dot is on the 5th step: $\frac{5}{8}$.
-
- 23 D** The whole cake is $\frac{8}{8}$. They ate $\frac{5}{8}$, so $\frac{8}{8} - \frac{5}{8} = \frac{3}{8}$ is left.
-
- 24 A** A bigger bottom number means the whole was cut into more, smaller pieces. Halves are bigger than thirds, so $\frac{1}{2} > \frac{1}{3}$. Sam mixed up the pieces with the piece size.
-