Proper, improper, mixed: answers

Practised: telling proper, improper (top-heavy) and mixed numbers apart (Year 5).

Page 1 · Warm up

$\frac{2}{3}$ P · $\frac{9}{4}$ I · $3\frac{1}{2}$ M · $\frac{6}{6}$ I · $\frac{5}{8}$ P · $1\frac{1}{5}$ M

Page 2 · Try it together

7 quarters: $\frac{7}{4} = 1\frac{3}{4}$, yes · 5 quarters: $\frac{5}{4} = 1\frac{1}{4}$, yes · 3 quarters: $\frac{3}{4}$, no (proper). Own choice: check the mixed number gives the same number of quarters.

Page 2 · A. Sort

Proper: $\frac{4}{7}$ $\frac{1}{9}$ $\frac{9}{10}$
Improper: $\frac{11}{6}$ $\frac{8}{8}$ $\frac{13}{10}$
Mixed: $2\frac{1}{3}$ $5\frac{2}{5}$ $3\frac{3}{4}$

Page 3 · B. Both ways

$\frac{5}{3} = 1\frac{2}{3}$ · $\frac{9}{4} = 2\frac{1}{4}$ · $\frac{7}{2} = 3\frac{1}{2}$

Page 3 · C. Less, equal, more

$\frac{3}{8}$ less · $\frac{12}{12}$ equal · $\frac{10}{7}$ more · $1\frac{1}{6}$ more

Page 3 · D. True or false

F (it's more than 1) · **F** (it's 1 whole, improper) · **F** · **T**

Challenge: No. There are **7 thirds** shaded, so it's $\frac{7}{3}$ (or $2\frac{1}{3}$). Sam wrote the fraction upside down. The bottom number is the size of the pieces (thirds); the top counts the shaded pieces.

Watch out for

- **Thinking $\frac{7}{4}$ is less than one.** Ask "How many quarters make a whole?" (4.) 7 is more than 4.
- **Calling $\frac{5}{5}$ proper.** It's exactly one whole, and proper fractions are always *less* than 1.
- **Writing fractions upside down** ($\frac{3}{7}$ for $\frac{7}{3}$). Say it as "7 pieces, each a third": the piece size goes on the bottom.

Going further (5 minutes, no paper)

- **Quick sort:** say a fraction ("nine fifths", "two and a half"). Your child says proper, improper or mixed.
- **Food fractions:** count halves of toast: "We've eaten 5 halves. Is that more than one whole?"
- **In the game:** Chapter 2 changes improper fractions into mixed numbers by packing fuel cells into full tanks.