

Equivalent Fractions

Unit: Fractions and Decimals - Student Practice Worksheet

Overview: Kabir ate half a chocolate bar. Anaya ate 2 out of 4 equal pieces of an identical bar. They argued about who ate more — until they lined up both bars side by side. The eaten portions covered the exact same amount of chocolate, even though the fractions $\frac{1}{2}$ and $\frac{2}{4}$ look completely different written down.

Practice Questions (30 Total)

Section A - Easy

Q1. Teal half-bar and maroon $\frac{2}{4}$ bar cover the same length. Equivalent?



- ☐ A. Yes, same value
- ☐ B. No, different
- ☐ C. Only sometimes
- ☐ D. Cannot be checked

Q2. What is the rule for finding equivalent fractions?

- ☐ A. Add the same number to top and bottom
- ☐ B. Multiply only the top
- ☐ C. Multiply only the bottom
- ☐ D. Multiply top and bottom by the same number

Q3. Find an equivalent fraction to $\frac{1}{3}$ by multiplying by $\frac{2}{2}$.

- ☐ A. $\frac{1}{6}$
- ☐ B. $\frac{2}{6}$
- ☐ C. $\frac{2}{3}$
- ☐ D. $\frac{3}{6}$

Q4. Eight parts, four teal. Simplest form of $\frac{4}{8}$?



8 parts, 4 teal

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

Q5. Are $\frac{3}{4}$ and $\frac{6}{8}$ equivalent?

- ☐ A. No, different
- ☐ B. Cannot be checked
- ☐ C. Yes, same value
- ☐ D. Only sometimes

Q6. Find an equivalent fraction to $\frac{2}{5}$ by multiplying by $\frac{3}{3}$.

- ☐ A. $\frac{5}{15}$
- ☐ B. $\frac{6}{15}$
- ☐ C. $\frac{6}{5}$
- ☐ D. $\frac{2}{15}$

Q7. Half bar scaled by $\frac{4}{4}$. What fraction is $\frac{1}{2} \times \frac{4}{4}$?



$\times \frac{4}{4}$

- ☐ A. $\frac{4}{8}$
- ☐ B. $\frac{1}{8}$
- ☐ C. $\frac{4}{2}$
- ☐ D. $\frac{5}{6}$

Q8. Are $\frac{2}{3}$ and $\frac{3}{5}$ equivalent?

- ☐ A. Yes, same value
- ☐ B. No, different
- ☐ C. Cannot be checked
- ☐ D. Only sometimes

Q9. Simplify $\frac{6}{9}$.

- ☐ A. $\frac{2}{3}$
- ☐ B. $\frac{3}{2}$
- ☐ C. $\frac{1}{3}$
- ☐ D. $\frac{6}{3}$

Q10. Simplify $\frac{10}{15}$, then name the divide-both rule you used.

- ☐ A. $\frac{3}{2}$
- ☐ B. $\frac{1}{3}$
- ☐ C. $\frac{5}{15}$
- ☐ D. $\frac{2}{3}$

Section B - Medium

Q11. Sixteen slices, twelve teal. Simplest form of $\frac{12}{16}$?



12 teal of 16

- ☐ A. $\frac{3}{4}$
- ☐ B. $\frac{6}{8}$
- ☐ C. $\frac{4}{3}$
- ☐ D. $\frac{1}{4}$

Q12. Kabir says $\frac{4}{6}$ is already in simplest form. Is he right?

- ☐ A. No, it simplifies further to $\frac{2}{3}$
- ☐ B. Yes, it cannot be simplified
- ☐ C. Cannot be determined
- ☐ D. Only true for even numerators

Q13. Find a fraction equivalent to $\frac{5}{7}$ with denominator 21.

- ☐ A. $\frac{10}{21}$
- ☐ B. $\frac{5}{21}$
- ☐ C. $\frac{15}{21}$
- ☐ D. $\frac{21}{15}$

Q14. $\frac{4}{6}$ teal bar lined up with $\frac{2}{3}$ maroon. Same amount eaten?



- ☐ A. Yes — $\frac{4}{6}$ simplifies to $\frac{2}{3}$
- ☐ B. No, Anaya ate more
- ☐ C. No, Kabir ate more
- ☐ D. Cannot be determined

Q15. Use cross-multiplication to check if $\frac{4}{6}$ and $\frac{6}{9}$ are equivalent.

- ☐ A. $4 \times 9 = 36$ and $6 \times 6 = 30$, not equivalent
- ☐ B. $4 \times 9 = 36$ and $6 \times 6 = 36$, so yes equivalent
- ☐ C. Cross-multiplication cannot be used here
- ☐ D. $4 \times 6 = 24$ and $9 \times 6 = 54$, not equivalent

Q16. Simplify $\frac{18}{24}$.

- ☐ A. $\frac{6}{8}$
- ☐ B. $\frac{9}{12}$
- ☐ C. $\frac{2}{3}$
- ☐ D. $\frac{3}{4}$

Q17. $\frac{3}{8}$ scaled so the top is 12. What is the matching fraction?

$$\frac{3}{8} \quad \times \frac{4}{4} \quad \text{top becomes 12}$$

- ☐ A. $\frac{12}{24}$
- ☐ B. $\frac{12}{32}$
- ☐ C. $\frac{12}{8}$
- ☐ D. $\frac{12}{16}$

Q18. Are $\frac{8}{12}$ and $\frac{2}{3}$ equivalent?

- ☐ A. No, they are different values
- ☐ B. Cannot be checked without a diagram

- ☐ C. Yes, since $8/12$ simplifies to $2/3$
- ☐ D. Only if both are multiplied by 4

Q19. Simplify $20/25$.

- ☐ A. $5/4$
- ☐ B. $2/5$
- ☐ C. $10/25$
- ☐ D. $4/5$

Q20. Which of $2/8$, $3/8$, $3/12$, $5/20$ is not $1/4$, and why?

- ☐ A. $2/8$
- ☐ B. $3/8$
- ☐ C. $3/12$
- ☐ D. $5/20$

Section C - Challenge

Q21. Top split in 2, bottom split in 4, same eaten length. What fact is that?



- ☐ A. Equivalent fractions represent the same real-world quantity despite different written forms
- ☐ B. Chocolate bars cannot be used to demonstrate fractions
- ☐ C. The two splits must actually be unequal quantities
- ☐ D. Fractions only work with round numbers

Q22. Why does multiplying both numerator and denominator by the same number keep the fraction's value unchanged?

- ☐ A. Multiplying by n/n is multiplying by 1, which never changes value
- ☐ B. It actually always changes the value
- ☐ C. This rule only works for even numbers
- ☐ D. There is no real reason, it's just a convention

Q23. Kabir wants the equivalent fraction of $\frac{5}{9}$ with the SMALLEST possible whole-number denominator bigger than 9. What is it?

- ☐ A. $\frac{5}{9}$ itself, unchanged
- ☐ B. $\frac{15}{27}$
- ☐ C. $\frac{10}{18}$
- ☐ D. $\frac{5}{10}$

Q24. Six of eight teal. Simplest form, using the HCF of 6 and 8?



6 of 8 teal

- ☐ A. $\frac{6}{8}$ is already fully simplified
- ☐ B. $\frac{3}{4}$, dividing by the HCF of 6 and 8, which is 2
- ☐ C. $\frac{1}{1}$, all fractions simplify to this
- ☐ D. $\frac{12}{16}$, by doubling instead

Q25. Two fractions have the SAME simplest form. What can you conclude about them?

- ☐ A. They are definitely different values
- ☐ B. Nothing can be concluded
- ☐ C. They must have the same denominator originally
- ☐ D. They are equivalent, representing the exact same value

Q26. Anaya simplifies $\frac{9}{12}$ and gets $\frac{3}{4}$. Kabir simplifies $\frac{15}{20}$ and also gets $\frac{3}{4}$. What does this tell them?

- ☐ A. $\frac{9}{12}$ and $\frac{15}{20}$ must be unrelated
- ☐ B. $\frac{9}{12}$ and $\frac{15}{20}$ are equivalent to each other too
- ☐ C. Only one of them simplified correctly
- ☐ D. Nothing can be concluded about the two original fractions

Q27. Finer equal splits, same teal length. Why infinitely many equivalents?



same length, finer splits

- ☐ A. Only exactly 3 equivalent forms exist for any fraction

- ☐ **B.** Fractions cannot actually have equivalent forms
- ☐ **C.** You can multiply top and bottom by any whole number, and there are infinitely many whole numbers
- ☐ **D.** Only unit fractions have equivalent forms

Q28. Why is cross-multiplication a reliable way to check equivalence WITHOUT simplifying first?

- ☐ **A.** a/b equals c/d exactly when $a \times d = b \times c$, a fact true for any pair of fractions
- ☐ **B.** It only works for fractions already in simplest form
- ☐ **C.** It is not actually reliable
- ☐ **D.** It only works when denominators are equal

Q29. A fraction's numerator and denominator have HCF equal to 1. What does this tell you?

- ☐ **A.** The fraction cannot be simplified further, but is NOT in simplest form
- ☐ **B.** The fraction equals exactly 1
- ☐ **C.** The fraction is improper
- ☐ **D.** The fraction is already in its simplest possible form

Q30. Why prefer lowest terms in a final answer, given equivalents keep the value?

- ☐ **A.** Simplified fractions have a different actual value
- ☐ **B.** It's the clearest, most standard way to communicate the value unambiguously
- ☐ **C.** There is no real reason to prefer it
- ☐ **D.** Unsimplified fractions are always mathematically wrong

Answer Key

Q1: (A) (a) Yes, they represent the same value.

Q2: (D) (d) Multiply top and bottom by the same number.

Q3: (B) (b) $\frac{2}{6}$. $1 \times 2 = 2$, $3 \times 2 = 6$.

Q4: (C) (c) $\frac{1}{2}$. Both 4 and 8 divide by 4.

Q5: (C) (c) Yes. $3 \times 2 = 6$ and $4 \times 2 = 8$, the same multiplying factor.

Q6: (B) (b) $\frac{6}{15}$. $2 \times 3 = 6$, $5 \times 3 = 15$.

Q7: (A) (a) $\frac{4}{8}$. $1 \times 4 = 4$, $2 \times 4 = 8$.

Q8: (B) (b) No. $2 \times 5 = 10$ but $3 \times 3 = 9$, not equal.

Q9: (A) (a) $\frac{2}{3}$. Both 6 and 9 divide by 3.

Q10: (D) (d) $\frac{2}{3}$. Both 10 and 15 divide by 5.

Q11: (A) (a) $\frac{3}{4}$. Dividing both by 4 (their HCF) gives the simplest form.

Q12: (A) (a) No, it simplifies further to $\frac{2}{3}$, since 4 and 6 share a common factor of 2.

Q13: (C) (c) $\frac{15}{21}$. $21 \div 7 = 3$, so multiply both top and bottom by 3: $5 \times 3 = 15$.

Q14: (A) (a) Yes — $\frac{4}{6}$ simplifies to $\frac{2}{3}$, so both ate exactly the same amount.

Q15: (B) (b) $4 \times 9 = 36$ and $6 \times 6 = 36$, so yes equivalent — both cross products match.

Q16: (D) (d) $\frac{3}{4}$. Dividing both 18 and 24 by their HCF, 6.

Q17: (B) (b) $\frac{12}{32}$. $3 \times 4 = 12$, so multiply denominator by 4 too: $8 \times 4 = 32$.

Q18: (C) (c) Yes, since $\frac{8}{12}$ simplifies to $\frac{2}{3}$ by dividing both by their HCF, 4.

Q19: (D) (d) $\frac{4}{5}$. Dividing both 20 and 25 by their HCF, 5.

Q20: (B) (b) $\frac{3}{8}$. It doesn't simplify to $\frac{1}{4}$, since 3 and 8 share no common factor greater than 1.

Q21: (A) (a) Equivalent fractions represent the same real-world quantity despite different written forms — the physical demonstration mirrors the abstract mathematical fact.

Q22: (A) (a) Multiplying by $\frac{n}{n}$ is multiplying by 1, which never changes value — the fraction is scaled up but represents the same proportion.

Q23: (C) (c) $\frac{10}{18}$. Multiplying both by 2 gives the next-smallest larger equivalent denominator after 9.

Q24: (B) (b) $\frac{3}{4}$, dividing by the HCF of 6 and 8, which is 2 — dividing by the HCF always gives the simplest possible equivalent form.

Q25: (D) (d) They are equivalent, representing the exact same value, even if their original written forms looked different.

Q26: (B) (b) $\frac{9}{12}$ and $\frac{15}{20}$ are equivalent to each other too, since sharing the same simplest form means they represent the same value.

Q27: (C) (c) You can multiply top and bottom by any whole number, and there are infinitely many whole numbers, giving infinitely many equivalent versions.

Q28: (A) (a) a/b equals c/d exactly when $a \times d = b \times c$, a fact true for any pair of fractions, making it a universal shortcut check.

Q29: (D) (d) The fraction is already in its simplest possible form, since no common factor bigger than 1 exists to divide out.

Q30: (B) (b) It's the clearest, most standard way to communicate the value unambiguously, even though the unsimplified form isn't mathematically incorrect.

You've got this! Keep learning and shining! - Ruchi Math Coaching