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 1/2 and 2/4 look completely different written down.

Practice Questions (30 Total)

Section A - Easy

Q1. Teal half-bar and maroon 2/4 bar cover the same length. Equivalent?

1/2 2/4

- [ ] **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 1/3 by multiplying by 2/2.

- [ ] **A.** 1/6
- [ ] **B.** 2/6
- [ ] **C.** 2/3
- [ ] **D.** 3/6

Q4. Eight parts, four teal. Simplest form of 4/8?

8 parts, 4 teal

- [ ] **A.** 2/4
- [ ] **B.** 1/4
- [ ] **C.** 1/2
- [ ] **D.** 4/2

Q5. Are 3/4 and 6/8 equivalent?

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

Q6. Find an equivalent fraction to 2/5 by multiplying by 3/3.

- [ ] **A.** 5/15
- [ ] **B.** 6/15
- [ ] **C.** 6/5
- [ ] **D.** 2/15

Q7. Half bar scaled by 4/4. What fraction is 1/2 x 4/4?

x 4/4

- [ ] **A.** 4/8
- [ ] **B.** 1/8
- [ ] **C.** 4/2
- [ ] **D.** 5/6

Q8. Are 2/3 and 3/5 equivalent?

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

Q9. Simplify 6/9.

- A. 2/3
- B. 3/2
- C. 1/3
- D. 6/3

Q10. Simplify 10/15, then name the divide-both rule you used.

- A. 3/2
- B. 1/3
- C. 5/15
- D. 2/3

Section B - Medium

Q11. Sixteen slices, twelve teal. Simplest form of 12/16?

12 teal of 16

- A. 3/4
- B. 6/8
- C. 4/3
- D. 1/4

Q12. Kabir says 4/6 is already in simplest form. Is he right?

- A. No, it simplifies further to 2/3
- B. Yes, it cannot be simplified
- C. Cannot be determined
- D. Only true for even numerators

Q13. Find a fraction equivalent to 5/7 with denominator 21.

- A. 10/21
- B. 5/21
- C. 15/21
- D. 21/15

Q14. 4/6 teal bar lined up with 2/3 maroon. Same amount eaten?

- [ ] **A.** Yes — 4/6 simplifies to 2/3
- [ ] **B.** No, Anaya ate more
- [ ] **C.** No, Kabir ate more
- [ ] **D.** Cannot be determined

Q15. Use cross-multiplication to check if 4/6 and 6/9 are equivalent.

- [ ] **A.** 4x9=36 and 6x6=30, not equivalent
- [ ] **B.** 4x9=36 and 6x6=36, so yes equivalent
- [ ] **C.** Cross-multiplication cannot be used here
- [ ] **D.** 4x6=24 and 9x6=54, not equivalent

Q16. Simplify 18/24.

- [ ] **A.** 6/8
- [ ] **B.** 9/12
- [ ] **C.** 2/3
- [ ] **D.** 3/4

Q17. 3/8 scaled so the top is 12. What is the matching fraction?

3/8 x 4/4 top becomes 12

- [ ] **A.** 12/24
- [ ] **B.** 12/32
- [ ] **C.** 12/8
- [ ] **D.** 12/16

Q18. Are 8/12 and 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 5/9 with the SMALLEST possible whole-number denominator bigger than 9. What is it?

- [ ] **A.** 5/9 itself, unchanged
- [ ] **B.** 15/27
- [ ] **C.** 10/18
- [ ] **D.** 5/10

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

6 of 8 teal

- [ ] **A.** 6/8 is already fully simplified
- [ ] **B.** 3/4, dividing by the HCF of 6 and 8, which is 2
- [ ] **C.** 1/1, all fractions simplify to this
- [ ] **D.** 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 9/12 and gets 3/4. Kabir simplifies 15/20 and also gets 3/4. What does this tell them?

- [ ] **A.** 9/12 and 15/20 must be unrelated
- [ ] **B.** 9/12 and 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×d=b×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) 2/6. 1x2=2, 3x2=6.

Q4: (C) (c) 1/2. Both 4 and 8 divide by 4.

Q5: (C) (c) Yes. 3x2=6 and 4x2=8, the same multiplying factor.

Q6: (B) (b) 6/15. 2x3=6, 5x3=15.

Q7: (A) (a) 4/8. 1x4=4, 2x4=8.

Q8: (B) (b) No. 2x5=10 but 3x3=9, not equal.

Q9: (A) (a) 2/3. Both 6 and 9 divide by 3.

Q10: (D) (d) 2/3. Both 10 and 15 divide by 5.

Q11: (A) (a) 3/4. Dividing both by 4 (their HCF) gives the simplest form.

Q12: (A) (a) No, it simplifies further to 2/3, since 4 and 6 share a common factor of 2.

Q13: (C) (c) 15/21. 21÷7=3, so multiply both top and bottom by 3: 5x3=15.

Q14: (A) (a) Yes — 4/6 simplifies to 2/3, so both ate exactly the same amount.

Q15: (B) (b) 4x9=36 and 6x6=36, so yes equivalent — both cross products match.

Q16: (D) (d) 3/4. Dividing both 18 and 24 by their HCF, 6.

Q17: (B) (b) 12/32. 3x4=12, so multiply denominator by 4 too: 8x4=32.

Q18: (C) (c) Yes, since 8/12 simplifies to 2/3 by dividing both by their HCF, 4.

Q19: (D) (d) 4/5. Dividing both 20 and 25 by their HCF, 5.

Q20: (B) (b) 3/8. It doesn't simplify to 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 n/n is multiplying by 1, which never changes value — the fraction is scaled up but represents the same proportion.

Q23: (C) (c) 10/18. Multiplying both by 2 gives the next-smallest larger equivalent denominator after 9.

Q24: (B) (b) 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) 9/12 and 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×d=b×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