

Multiplication and Division of Fractions

Unit: Fractions - Student Practice Worksheet

Overview: Kabir needed half of three-quarters of a chocolate bar, and had no idea where to start. Anaya said the answer was smaller than either fraction alone — which felt backwards. Multiplying fractions makes things SMALLER, not bigger — the opposite of what whole-number multiplication ever does.

Practice Questions (30 Total)

Section A - Easy

Q1. Half-bar of a third-bar. Product?



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

Q2. The rule for multiplying fractions is:

- ☐ A. Add numerators, add denominators
- ☐ B. Cross-multiply and add
- ☐ C. Numerator $\times$ numerator, denominator $\times$ denominator
- ☐ D. Subtract numerators

Q3. Multiplying by a fraction less than 1 makes the result:

- ☐ A. Bigger
- ☐ B. The same
- ☐ C. Negative
- ☐ D. Smaller

Q4. Half of a half-square. Product?



half of a half = $\frac{1}{4}$

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

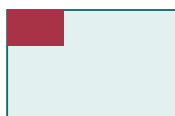
Q5. The reciprocal of $\frac{3}{4}$ is:

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

Q6. Divide: $\frac{1}{2} \div \frac{1}{2}$.

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

Q7. One-third of a one-third square. Product?



$\frac{1}{3}$ of $\frac{1}{3}$ = $\frac{1}{9}$

- ☐ A. $\frac{2}{3}$
- ☐ B. $\frac{1}{6}$
- ☐ C. $\frac{2}{9}$
- ☐ D. $\frac{1}{9}$

Q8. To divide by a fraction, you should:

- ☐ A. Add its reciprocal
- ☐ B. Multiply by its reciprocal
- ☐ C. Subtract its reciprocal
- ☐ D. Divide by its reciprocal

Q9. Dividing by a fraction less than 1 makes the result:

- ☐ A. Smaller
- ☐ B. The same
- ☐ C. Bigger
- ☐ D. Zero

Q10. Flip $1/5$, then say the reciprocal as a whole number.

$1/5$ flip to $5/1 = 5$

- ☐ A. $1/5$
- ☐ B. 5
- ☐ C. $1/25$
- ☐ D. $5/5$

Section B - Medium

Q11. Half of three-quarters of the bar. Product?



- ☐ A. $3/8$
- ☐ B. $3/4$
- ☐ C. $4/8$
- ☐ D. $1/2$

Q12. Anaya multiplied $2/3 \times 3/5$ and simplified. What was her final answer?

- ☐ A. $6/15$
- ☐ B. $2/5$
- ☐ C. $3/8$
- ☐ D. $5/8$

Q13. A recipe needs $2/3$ cup of sugar, and you're making half the recipe. How much sugar is needed?

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

Q14. Three-quarters times two-thirds on the bar. Simplest product?



$\frac{3}{4} \times \frac{2}{3}$ simplifies

- ☐ A. $\frac{5}{7}$
- ☐ B. $\frac{6}{12}$
- ☐ C. $\frac{2}{3}$
- ☐ D. $\frac{1}{2}$

Q15. Multiply: $\frac{2}{5} \times \frac{5}{6}$.

- ☐ A. $\frac{10}{30}$
- ☐ B. $\frac{1}{3}$
- ☐ C. $\frac{7}{11}$
- ☐ D. $\frac{2}{6}$

Q16. How many $\frac{1}{4}$ -cup scoops fit into $\frac{3}{4}$ cup?

- ☐ A. 3
- ☐ B. 4
- ☐ C. $\frac{1}{3}$
- ☐ D. 12

Q17. How many quarter-bars fit in a half-bar?



how many $\frac{1}{4}$ in $\frac{1}{2}$

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

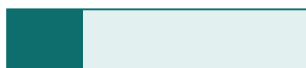
Q18. Divide: $\frac{3}{4} \div \frac{1}{8}$.

- ☐ A. 6
- ☐ B. $\frac{3}{32}$
- ☐ C. 24
- ☐ D. 3

Q19. Divide: $\frac{2}{3} \div \frac{1}{3}$.

- ☐ A. $\frac{2}{9}$
- ☐ B. $\frac{1}{2}$
- ☐ C. 2
- ☐ D. $\frac{2}{3}$

Q20. Multiply $\frac{1}{4} \times \frac{4}{5}$, then simplify and check the picture.



$$\frac{1}{4} \times \frac{4}{5} = \frac{1}{5}$$

- ☐ A. $\frac{4}{20}$
- ☐ B. $\frac{1}{5}$
- ☐ C. $\frac{5}{9}$
- ☐ D. $\frac{4}{5}$

Section C - Challenge

Q21. Three stacked bars: $\frac{2}{3}$ then $\frac{3}{4}$ then $\frac{1}{2}$. Product?



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

- ☐ A. $\frac{1}{4}$
- ☐ B. $\frac{1}{2}$
- ☐ C. $\frac{6}{24}$
- ☐ D. $\frac{1}{8}$

Q22. Divide: $\frac{5}{6} \div \frac{2}{3}$.

- ☐ A. $10/18$
- ☐ B. $5/4$
- ☐ C. $5/9$
- ☐ D. $2/5$

Q23. A ribbon is $5/6$ m long. It is cut into pieces each $1/12$ m long. How many pieces?

- ☐ A. 5
- ☐ B. 12
- ☐ C. 10
- ☐ D. 6

Q24. Tank $3/4$ full; half the water used. Fraction of tank left?



half of $3/4$ remains $3/8$

- ☐ A. $3/8$
- ☐ B. $3/4$
- ☐ C. $1/2$
- ☐ D. $1/4$

Q25. Anaya says: 'Multiplying a whole number by a fraction less than 1 always makes it smaller.' Is she right?

- ☐ A. No, it always makes it bigger
- ☐ B. Only for even whole numbers
- ☐ C. Only if the whole number is 1
- ☐ D. Yes — the same shrinking effect applies to whole numbers too

Q26. A pizza is cut into eighths. If Kabir eats $3/8$ and then shares half of what remains with a friend, how much does the friend get (as a fraction of the whole pizza)?

- ☐ A. $5/8$
- ☐ B. $3/16$
- ☐ C. $1/2$
- ☐ D. $5/16$

Q27. Three-fifths of five-ninths on the bar. Simplest product?



$$3/5 \times 5/9 = 1/3$$

- ☐ A. 15/45
- ☐ B. 8/14
- ☐ C. 1/3
- ☐ D. 3/9

Q28. Kabir says dividing by $1/2$ is the 'same as' multiplying by 2. Is this true?

- ☐ A. No, dividing by $1/2$ always halves the number
- ☐ B. Yes — the reciprocal of $1/2$ is $2/1$, which is just 2
- ☐ C. Only true for fractions greater than 1
- ☐ D. Only true for whole numbers

Q29. A rope $7/8$ m long is divided into pieces $1/4$ m each. How many FULL pieces can be cut, and how much rope is left over?

- ☐ A. 4 full pieces, with nothing left over
- ☐ B. 3 full pieces, with $1/8$ m left over
- ☐ C. 3 full pieces, with $1/4$ m left over
- ☐ D. 2 full pieces, with $3/8$ m left over

Q30. Why does dividing by a fraction less than 1 give a BIGGER result, while multiplying by the same fraction gives a SMALLER one?



divide counts pieces; multiply takes a part

- ☐ A. Because division asks how many small pieces fit into the whole, which is naturally a larger count, while multiplication takes only a part of a part
- ☐ B. Because division and multiplication are actually the same operation
- ☐ C. There is no real reason, it's simply a coincidence
- ☐ D. Because fractions less than 1 are not real numbers

Answer Key

Q1: (A) (a) $1/6$. $(1 \times 1)/(2 \times 3) = 1/6$.

Q2: (C) (c) Numerator $\times$ numerator, denominator $\times$ denominator.

Q3: (D) (d) Smaller — you're taking a part of a part.

Q4: (B) (b) $1/4$. $(1 \times 1)/(2 \times 2) = 1/4$.

Q5: (A) (a) $4/3$ — flip numerator and denominator.

Q6: (A) (a) 1. Any fraction divided by itself equals 1.

Q7: (D) (d) $1/9$. $(1 \times 1)/(3 \times 3) = 1/9$.

Q8: (B) (b) Multiply by its reciprocal.

Q9: (C) (c) Bigger — the opposite effect of multiplying.

Q10: (B) (b) 5, or $5/1$ — flip $1/5$ upside down.

Q11: (A) (a) $3/8$. $(1 \times 3)/(2 \times 4) = 3/8$.

Q12: (B) (b) $2/5$. $6/15$ simplifies by dividing both by 3, giving $2/5$.

Q13: (D) (d) $1/3$ cup. $1/2 \times 2/3 = 2/6 = 1/3$.

Q14: (D) (d) $1/2$. $(3 \times 2)/(4 \times 3) = 6/12$, which simplifies to $1/2$.

Q15: (B) (b) $1/3$. $(2 \times 5)/(5 \times 6) = 10/30$, which simplifies to $1/3$.

Q16: (A) (a) 3. $3/4 \div 1/4 = 3/4 \times 4/1 = 12/4 = 3$.

Q17: (C) (c) 2. $1/2 \times 4/1 = 4/2 = 2$.

Q18: (A) (a) 6. $3/4 \times 8/1 = 24/4 = 6$.

Q19: (C) (c) 2. $2/3 \times 3/1 = 6/3 = 2$.

Q20: (B) (b) $1/5$. $(1 \times 4)/(4 \times 5) = 4/20$, which simplifies to $1/5$.

Q21: (A) (a) $1/4$. $(2 \times 3 \times 1)/(3 \times 4 \times 2) = 6/24$, which simplifies to $1/4$.

Q22: (B) (b) $5/4$. $5/6 \times 3/2 = 15/12$, which simplifies to $5/4$.

Q23: (C) (c) 10. $5/6 \div 1/12 = 5/6 \times 12/1 = 60/6 = 10$.

Q24: (A) (a) $3/8$. Used = $1/2 \times 3/4 = 3/8$; remaining = $3/4 - 3/8 = 3/8$.

Q25: (D) (d) Yes — the same 'part of a part' shrinking effect applies whether the starting amount is a fraction or a whole number.

Q26: (D) (d) $5/16$. Remaining after Kabir = $5/8$; half of that = $1/2 \times 5/8 = 5/16$.

Q27: (C) (c) $1/3$. $(3 \times 5)/(5 \times 9) = 15/45$, which simplifies to $1/3$.

Q28: (B) (b) Yes — the reciprocal of $1/2$ is 2, so dividing by $1/2$ is the same operation as multiplying by 2.

Q29: (B) (b) $7/8 \div 1/4 = 7/8 \times 4/1 = 28/8 = 3.5$, so 3 full pieces (using $3/4$ m) with $7/8 - 3/4 = 1/8$ m left over.

Q30: (A) (a) Division by a small fraction counts how many of those small pieces fit into the whole (a bigger count), while multiplying by that fraction takes only a portion of a portion (a smaller amount).

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