

Multiplication and Division of Fractions

Unit: Fractions and Decimals - Student Practice Worksheet

Overview: Kabir multiplied $\frac{2}{3}$ by $\frac{3}{4}$ by cross-multiplying the way he does for equivalence checks, and got a completely wrong answer. Anaya multiplied straight across — numerator times numerator, denominator times denominator — and got the right one in two steps. Multiplying fractions turned out to be simpler than adding them; dividing them needed one clever extra twist.

Practice Questions (30 Total)

Section A - Easy

Q1. The teal patch is half of a third of the bar. What is $\frac{1}{2} \times \frac{1}{3}$?



half of a third

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

Q2. How do you multiply two fractions?

- ☐ A. Find a common denominator first
- ☐ B. Multiply numerators, multiply denominators
- ☐ C. Add the numerators
- ☐ D. Flip the second fraction

Q3. What is the reciprocal of $\frac{1}{4}$?

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

Q4. How many maroon quarters fit in the teal half? That is $\frac{1}{2} \div \frac{1}{4}$.



how many quarters fit in the half



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

Q5. How do you divide by a fraction?

- ☐ A. Add a common denominator
- ☐ B. Multiply numerators only
- ☐ C. Subtract instead
- ☐ D. Flip it and multiply

Q6. Multiply $2/3 \times 3/4$.

- ☐ A. $1/2$
- ☐ B. $5/7$
- ☐ C. $6/7$
- ☐ D. $5/12$

Q7. One maroon cell in a 2-by-5 grid. What is $1/5 \times 1/2$?



1 of 5, then half

- ☐ A. $2/7$
- ☐ B. $1/7$
- ☐ C. $2/10$
- ☐ D. $1/10$

Q8. Do you need a common denominator to multiply fractions?

- ☐ A. No, multiply straight
- ☐ B. Yes, always convert
- ☐ C. Only sometimes
- ☐ D. Only if improper

Q9. What is the reciprocal of $\frac{1}{6}$?

- ☐ A. $\frac{1}{6}$
- ☐ B. $\frac{6}{6}$
- ☐ C. $\frac{6}{1}$
- ☐ D. $\frac{0}{6}$

Q10. Compute $\frac{2}{3} \div \frac{1}{6}$, then name the flip-and-multiply step.

- ☐ A. $\frac{1}{9}$
- ☐ B. 4
- ☐ C. 9
- ☐ D. $\frac{2}{18}$

Section B - Medium

Q11. Teal is 3 rows of 5 by 2 columns of 7. What is $\frac{3}{5} \times \frac{2}{7}$?



3 of 5 by 2 of 7

- ☐ A. $\frac{6}{35}$
- ☐ B. $\frac{5}{12}$
- ☐ C. $\frac{5}{35}$
- ☐ D. $\frac{6}{12}$

Q12. Divide $\frac{5}{6} \div \frac{5}{6}$.

- ☐ A. $\frac{25}{36}$
- ☐ B. 0
- ☐ C. 2
- ☐ D. 1

Q13. Divide $\frac{3}{4} \div \frac{1}{8}$.

- ☐ A. $\frac{3}{32}$
- ☐ B. 6
- ☐ C. $\frac{1}{6}$
- ☐ D. 32

Q14. Six teal eighths make $\frac{3}{4}$ of a pizza. How many $\frac{1}{8}$ pieces is that?



$\frac{3}{4}$ pizza in $\frac{1}{8}$ slices

- ☐ A. 6
- ☐ B. $\frac{3}{32}$
- ☐ C. 8
- ☐ D. 32

Q15. Divide $\frac{7}{8} \div \frac{7}{8}$.

- ☐ A. 0
- ☐ B. 1
- ☐ C. $\frac{49}{64}$
- ☐ D. 2

Q16. Multiply $\frac{4}{5} \times \frac{5}{8}$.

- ☐ A. $\frac{9}{13}$
- ☐ B. $\frac{20}{40}$
- ☐ C. $\frac{1}{2}$
- ☐ D. $\frac{9}{40}$

Q17. Four teal wholes split into halves. How many halves is $4 \div \frac{1}{2}$?



4 wholes, halves

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

Q18. Multiply $\frac{5}{6}$ by the whole number 3 (write 3 as $\frac{3}{1}$).

- ☐ A. $\frac{15}{18}$
- ☐ B. $\frac{8}{9}$

- ☐ C. $\frac{5}{2}$
- ☐ D. $\frac{5}{18}$

Q19. Multiply $\frac{2}{9} \times \frac{3}{4}$.

- ☐ A. $\frac{1}{6}$
- ☐ B. $\frac{5}{13}$
- ☐ C. $\frac{6}{36}$
- ☐ D. $\frac{6}{13}$

Q20. Multiply $\frac{1}{3}$ three times, then say what the three denominators do.

- ☐ A. $\frac{1}{9}$
- ☐ B. $\frac{1}{27}$
- ☐ C. $\frac{3}{9}$
- ☐ D. $\frac{1}{3}$

Section C - Challenge

Q21. Ribbon to $\frac{5}{6}$, cuts of $\frac{1}{12}$. How many full pieces?



$\frac{5}{6}$ m in $\frac{1}{12}$ m cuts

- ☐ A. $\frac{5}{72}$
- ☐ B. 10
- ☐ C. $\frac{72}{5}$
- ☐ D. 6

Q22. Why doesn't fraction multiplication need a common denominator, unlike addition?

- ☐ A. Multiplication combines pieces by scaling, not by counting same-sized pieces
- ☐ B. It actually does need one, this is a common myth
- ☐ C. Only because multiplication always gives smaller answers
- ☐ D. There is no real mathematical reason

Q23. Multiply $\frac{5}{6} \times \frac{12}{25}$.

- ☐ A. $\frac{17}{31}$
- ☐ B. $\frac{60}{150}$

- ☐ C. $\frac{2}{5}$
- ☐ D. $\frac{5}{25}$

Q24. A $\frac{3}{2}$ by $\frac{7}{3}$ rectangle. What is $1\frac{1}{2} \times 2\blacksquare$?



$\frac{3}{2}$ by $\frac{7}{3}$

- ☐ A. $3 \times 2 = 6$
- ☐ B. $\frac{7}{2}$ (equal to $3\frac{1}{2}$)
- ☐ C. $3\frac{1}{2} + 2\blacksquare = 5\blacksquare$
- ☐ D. $1\frac{1}{2} + 2\blacksquare = 3\blacksquare$

Q25. Why does dividing by a fraction SMALLER than 1 give an answer BIGGER than the original number?

- ☐ A. This is actually never true
- ☐ B. Fitting a small piece into a bigger amount takes more, not fewer, copies
- ☐ C. Only division by whole numbers can increase a value
- ☐ D. It only happens with negative fractions

Q26. Kabir claims 'flip and multiply' also works for MULTIPLICATION, just to be safe. What goes wrong if he flips before multiplying two fractions?

- ☐ A. Nothing goes wrong, it works fine either way
- ☐ B. It only matters for fractions bigger than 1
- ☐ C. Flipping always cancels out during multiplication
- ☐ D. He gets a completely different, wrong answer, since flipping is only valid for division

Q27. Teal $\frac{9}{4}$ split by maroon $\frac{3}{2}$. What is $2\frac{1}{4} \div 1\frac{1}{2}$?



- ☐ A. $\frac{27}{8}$
- ☐ B. $\frac{9}{4}$
- ☐ C. $\frac{3}{2}$ (equal to $1\frac{1}{2}$)
- ☐ D. $\frac{3}{4}$

Q28. Why is multiplying by a fraction SMALLER than 1 always a decrease from the original number?

- ☐ A. You're only taking a partial amount of the original, so it must shrink
- ☐ B. It actually always increases the value
- ☐ C. This is only true for even numerators
- ☐ D. Multiplying by any fraction always keeps the value unchanged

Q29. Divide $5/12$ by $5/6$.

- ☐ A. $25/72$
- ☐ B. 2
- ☐ C. $5/2$
- ☐ D. $1/2$

Q30. Why does a fraction divided by itself equal 1, as in $5/6 \div 5/6$?

- ☐ A. Any nonzero quantity divided by itself always equals 1
- ☐ B. This is only true for unit fractions
- ☐ C. It actually depends on the specific fraction
- ☐ D. Division by a fraction never equals exactly 1

Answer Key

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

Q2: (B) (b) Multiply numerators, multiply denominators.

Q3: (C) (c) $4/1$. Flip numerator and denominator.

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

Q5: (D) (d) Flip it and multiply.

Q6: (A) (a) $1/2$. $2 \times 3 = 6$, $3 \times 4 = 12$, $6/12 = 1/2$.

Q7: (D) (d) $1/10$. $1 \times 1 = 1$, $5 \times 2 = 10$.

Q8: (A) (a) No, multiplication doesn't require a common denominator.

Q9: (C) (c) $6/1$. Flip numerator and denominator.

Q10: (B) (b) 4. $2/3 \times 6/1 = 12/3 = 4$.

Q11: (A) (a) $6/35$. $3 \times 2 = 6$, $5 \times 7 = 35$.

Q12: (D) (d) 1. Any nonzero fraction divided by itself equals 1.

Q13: (B) (b) 6. $3/4 \times 8/1 = 24/4 = 6$.

Q14: (A) (a) 6. $3/4 \div 1/8 = 3/4 \times 8/1 = 24/4 = 6$ pieces.

Q15: (B) (b) 1. Any nonzero fraction divided by itself equals 1.

Q16: (C) (c) $1/2$. $4 \times 5 = 20$, $5 \times 8 = 40$, $20/40 = 1/2$.

Q17: (D) (d) 8. $4/1 \times 2/1 = 8/1 = 8$.

Q18: (C) (c) $5/2$. $5 \times 3 = 15$, $6 \times 1 = 6$, $15/6$ simplifies to $5/2$.

Q19: (A) (a) $1/6$. $2 \times 3 = 6$, $9 \times 4 = 36$, $6/36 = 1/6$.

Q20: (B) (b) $1/27$. $1 \times 1 \times 1 = 1$, $3 \times 3 \times 3 = 27$.

Q21: (B) (b) 10. $5/6 \div 1/12 = 5/6 \times 12/1 = 60/6 = 10$ pieces.

Q22: (A) (a) Multiplication combines pieces by scaling, not by counting same-sized pieces, which is why the denominators don't need to match first.

Q23: (C) (c) $2/5$. $5 \times 12 = 60$, $6 \times 25 = 150$, $60/150$ simplifies to $2/5$.

Q24: (B) (b) $7/2$ (equal to $3\frac{1}{2}$). $1\frac{1}{2} = 3/2$, $2\blacksquare = 7/3$, $3/2 \times 7/3 = 21/6 = 7/2 = 3\frac{1}{2}$.

Q25: (B) (b) Fitting a small piece into a bigger amount takes more, not fewer, copies — dividing 1 by $1/4$ asks how many quarters fit into 1, giving 4, bigger than 1.

Q26: (D) (d) He gets a completely different, wrong answer, since flipping is only valid for division — multiplication must always be done straight across.

Q27: (C) (c) $3/2$ (equal to $1\frac{1}{2}$). $2\frac{1}{4} = 9/4$, $1\frac{1}{2} = 3/2$, $9/4 \times 2/3 = 18/12 = 3/2$.

Q28: (A) (a) You're only taking a partial amount of the original, so it must shrink — for example half of 8 is 4, smaller than 8.

Q29: (D) (d) $1/2$. $5/12 \times 6/5 = 30/60 = 1/2$.

Q30: (A) (a) Any nonzero quantity divided by itself always equals 1, a general arithmetic fact that applies to fractions just as it does to whole numbers.

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