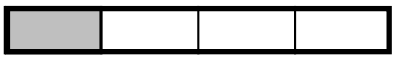
Multiplication of fractions worksheet. Professor Luis Fernández

Multiplying a whole number times a fraction: $a \cdot \frac{b}{c}$

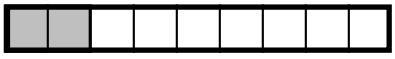
Remember: $a \cdot \frac{b}{c} = \frac{a \cdot b}{c}$. For example: $3 \cdot \frac{1}{4} = \frac{3}{4}$.

In pictures:

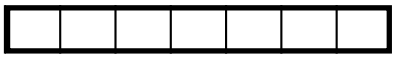
$3 \times \frac{1}{4} = 3 \times$  $=$  $= \frac{3}{4}$

Another example: $4 \cdot \frac{2}{9} = \frac{8}{9}$.

In pictures:

$4 \times \frac{2}{9} = 3 \times$  $=$  $= \frac{8}{9}$

In the following, shade the part corresponding to the fraction, then multiply it by the number given and write the result at the end, as in the examples above.

1. $2 \times \frac{3}{7} = 2 \times$  $=$  $=$ ——

2. $5 \times \frac{1}{8} = 5 \times$  $=$  $=$ ——

3. $2 \times \frac{3}{6} = 2 \times$  $=$  $=$ ——

4. $3 \times \frac{2}{9} = 3 \times$  $=$  $=$ ——

5. $4 \times \frac{2}{11} = 4 \times$  $=$  $=$ ——

6. $4 \times \frac{1}{7} = 4 \times$  $=$  $=$ ——

Now without the pictures. Multiply the following. **Remember to leave the final result in lowest terms.**

7. $5 \cdot \frac{3}{10} = \frac{15}{10} = \frac{3}{2}$ (example)

8. $2 \cdot \frac{3}{7} =$

9. $4 \times \frac{5}{9} =$

10. $2 \cdot \frac{5}{6} =$

11. $6 \times \frac{5}{3} =$

12. $5 \cdot \frac{2}{8} =$

13. $7 \times \frac{3}{2} =$

14. $5 \cdot \frac{2}{5} =$

15. $2 \times \frac{3}{8} =$

16. $3 \cdot \frac{4}{9} =$

17. $2 \cdot \frac{1}{5} =$

18. $1 \cdot \frac{3}{6} =$

19. $7 \cdot \frac{9}{4} =$

20. $8 \cdot \frac{5}{2} =$

21. $10 \cdot \frac{2}{5} =$

22. $6 \cdot \frac{3}{2} =$

23. $2 \cdot \frac{11}{6} =$

24. $5 \cdot \frac{12}{5} =$

Multiplying two fractions

Remember: $\frac{a}{b} \cdot \frac{c}{d} = \frac{a \cdot c}{b \cdot d}$. For example: $\frac{5}{3} \cdot \frac{2}{7} = \frac{5 \cdot 2}{3 \cdot 7} = \frac{10}{21}$.

Do not forget to simplify the final function and leave it in lowest terms.

For example: $\frac{2}{5} \cdot \frac{10}{3} = \frac{2 \cdot 10}{5 \cdot 3} = \frac{20}{15} = \frac{4}{3}$.

Multiply and leave the final answer in lowest terms.

25. $\frac{3}{7} \cdot \frac{5}{3} = \frac{3 \cdot 5}{7 \cdot 3} = \frac{15}{21} = \frac{5}{7}$ (ex.)

26. $\frac{3}{7} \cdot \frac{3}{2} =$

27. $\frac{5}{4} \cdot \frac{7}{3} =$

28. $\frac{1}{4} \cdot \frac{3}{4} =$

29. $\frac{3}{1} \cdot \frac{2}{7} =$

30. $\frac{6}{8} \cdot \frac{4}{9} =$

31. $\frac{7}{3} \cdot \frac{3}{8} =$

32. $\frac{1}{5} \cdot \frac{4}{6} =$

33. $\frac{2}{5} \cdot \frac{5}{1} =$

34. $\frac{3}{4} \cdot \frac{2}{7} =$

35. $\frac{1}{4} \cdot \frac{1}{4} =$

36. $\frac{2}{3} \cdot \frac{4}{5} =$

37. $\frac{3}{5} \cdot \frac{2}{9} =$

38. $4 \cdot \frac{3}{8} =$

39. $5 \cdot \frac{6}{7} =$

40. $\frac{7}{3} \cdot \frac{3}{12} =$

41. $\frac{4}{1} \cdot \frac{3}{8} =$

42. $\frac{5}{1} \cdot \frac{6}{7} =$

43. $3 \cdot \frac{4}{5} =$

44. $\frac{2}{3} \cdot \frac{13}{4} =$

45. $\frac{5}{3} \cdot \frac{3}{5} =$

46. $\frac{3}{1} \cdot \frac{4}{5} =$

47. $\frac{3}{7} \cdot \frac{7}{3} =$

48. $\frac{1}{8} \cdot \frac{8}{1} =$

49. $\frac{4}{7} \cdot \frac{3}{4} =$

50. $\frac{3}{5} \cdot \frac{5}{2} =$

51. $\frac{3}{8} \cdot \frac{8}{3} =$

52. $\frac{23}{15} \cdot \frac{15}{23} =$

53. $\frac{11}{4} \cdot \frac{5}{22} =$

54. $\frac{123}{456} \cdot \frac{456}{123} =$

Cancelling common factors before multiplying

It is much more efficient and easier to first divide the numerator and denominator by their common factors, and then multiply.

For example: $\frac{14}{5} \cdot \frac{15}{4} = \frac{14 \cdot 15}{5 \cdot 4} = \frac{7 \cdot 3}{1 \cdot 2} = \frac{21}{2}$.
(First we divided the 14 in the numerator and the 4 in the denominator by 2, and then the 15 in the numerator and the 5 in the denominator by 5. Then we multiplied.)

Multiply by first cancelling common factors and then multiplying, as above. (Note: it is OK to not do it this way, but it is much easier and faster!)

55. $\frac{4}{8} \cdot \frac{5}{15} =$

56. $\frac{7}{3} \cdot \frac{9}{14} =$

57. $\frac{6}{4} \cdot \frac{2}{3} =$

58. $\frac{6}{5} \cdot \frac{20}{8} =$

59. $\frac{12}{5} \cdot \frac{10}{9} =$

60. $\frac{1}{10} \cdot \frac{100}{7} =$

61. $\frac{4}{3} \cdot \frac{9}{8} =$

62. $\frac{35}{4} \cdot \frac{8}{5} =$

63. $\frac{2}{5} \cdot \frac{10}{12} =$