

Name _____

Date _____

7.3 Multiplying fractions — worksheet

Multiply fractions by fractions and by whole numbers, and find a fraction of a quantity. · 46 questions · Show your working.

Remember

- To multiply fractions: **multiply the numerators, multiply the denominators**.
- No common denominator is needed — that step belongs to adding and subtracting.
- The word **of** means multiply: $\frac{1}{2}$ of $\frac{3}{4}$ is $\frac{1}{2} \times \frac{3}{4}$.
- Multiplying by a fraction **less than 1 makes a number smaller**. That is not a mistake.
- **Cancel first** where you can — it keeps the numbers small and the simplifying easy.
- To multiply by a whole number, divide by the denominator then multiply by the numerator: $\frac{3}{4} \times 8 = 8 \div 4 \times 3 = 6$.
- For mixed numbers, convert to improper fractions before multiplying.
- Check by size: $\frac{3}{4}$ of 8 must be less than 8 but more than half of it.

A · Fluency — Multiply, and simplify.

1 Work out $\frac{1}{2} \times \frac{1}{3}$

2 Work out $\frac{2}{3} \times \frac{3}{4}$

3 Work out $\frac{3}{5} \times \frac{5}{6}$

4 Work out $\frac{1}{4} \times \frac{2}{5}$

5 Work out $\frac{3}{4} \times \frac{2}{9}$

6 Work out $\frac{5}{8} \times \frac{4}{5}$

7 Work out $\frac{2}{7} \times \frac{7}{8}$

8 Work out $\frac{3}{10} \times \frac{5}{9}$

9 Work out $\frac{4}{5} \times \frac{5}{12}$

10 Work out $\frac{7}{9} \times \frac{3}{14}$

11 Work out $\frac{1}{2} \times 6$

12 Work out $\frac{2}{3} \times 9$

- 13 Work out $3^4 \times 20$
-
- 14 Work out $2^5 \times 35$
-
- 15 Work out $5^6 \times 18$
-
- 16 Work out $3^8 \times 24$
-
- 17 Work out $4^7 \times 21$
-
- 18 Work out $5^9 \times 27$
-
- 19 Work out $1^2 \times 1^2$
-
- 20 Work out $2^3 \times 2^3$
-
- 21 Work out $3^4 \times 3^4$
-
- 22 Work out $2^5 \times 2^5$
-
- 23 Work out $5^6 \times 5^6$
-
- 24 Work out $3^8 \times 3^8$
-

B · Reasoning — Why multiplying can shrink a number.

- 25 How do you multiply two fractions?
- ☐ Find a common denominator first
 - ☐ Multiply the numerators, and multiply the denominators
 - ☐ Multiply the numerators only
 - ☐ Cross-multiply
- 26 What does “of” mean in “ $1/2$ of $3/4$ ”?
- ☐ add
 - ☐ subtract
 - ☐ multiply
 - ☐ divide
- 27 Multiplying by a fraction less than 1 makes a number ...
- ☐ bigger
 - ☐ smaller
 - ☐ unchanged
 - ☐ negative

- 28** Why is $\frac{3}{4} \times 8 = 6$ rather than 24?
- ☐ Because $8 \div 4 = 2$ and $2 \times 3 = 6$
 - ☐ Because $3 \times 8 = 24$ and you halve it
 - ☐ Because $8 - 2 = 6$
 - ☐ It is 24
- 29** Is it worth simplifying before multiplying?
- ☐ Yes
 - ☐ No
- 30** Do you need a common denominator to multiply fractions?
- ☐ Yes
 - ☐ No
- 31** What is $\frac{2}{3}$ of 1?
- ☐ 1
 - ☐ $\frac{2}{3}$
 - ☐ $\frac{3}{2}$
 - ☐ 0
- 32** Marcus says $\frac{1}{2} \times \frac{1}{2} = 1$. What has he done?
- ☐ Nothing
 - ☐ Added instead of multiplied
 - ☐ Squared correctly
 - ☐ Divided

C · Challenge — Chains, areas and working backwards.

- 33** Work out $1^2 \times 2^3 \times 3^4$
-
- 34** Work out 3^4 of 8^9
-
- 35** Two thirds of a number is 18. What is the number?
-
- 36** Three quarters of a number is 30. What is the number?
-
- 37** What is 1^2 of 1^2 of 1^2 ?
-
- 38** A square has side 2^3 m. What is its area, in m^2 ?
-

D · Word problems — Fractions of real quantities.

- 39** A jar holds 3^4 litre. 2^3 of it is used. How many litres are used?
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- 40** A class of 28 has $\frac{3}{4}$ present. How many learners are present?
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41 A 45-minute lesson is $\frac{2}{3}$ over. How many minutes have gone?

42 A rectangle is $\frac{3}{4}$ m by $\frac{2}{5}$ m. What is its area, in m^2 ?

43 A shop has 60 apples and sells $\frac{5}{6}$ of them. How many are sold?

44 $\frac{2}{5}$ of a cake is left and half of that is eaten. What fraction of the whole cake is eaten?

45 A tank holds 84 litres and is $\frac{3}{7}$ full. How many litres are in it?

46 A journey is 120 km and $\frac{2}{5}$ has been driven. How many kilometres is that?
