# Multiplying Fractions Homework

## Literacy

\[ \frac{3}{4} \] means the same as \( 3 \div 4 \)

This means that **multiplying by** \( \frac{3}{4} \)

is the same as \( \times 3 \) and \( \div 4 \)

\[ \frac{3}{4} \text{ of } \frac{2}{3} \] means the same as \( \frac{3}{4} \times \frac{2}{3} \)

which is \( \frac{3\times2}{4\times3} = \frac{6}{12} = \frac{1}{2} \)

## Research

What is the definition of **factorial**?

*Note: ’7 factorial’ is written 7! (the symbol is as an exclamation mark).*

Use your definition to find:

\[ 3! = 5! = \frac{5!}{3!} = \frac{3!}{5!} = \]

## Memory

- To find a fraction of any number, **multiply** by the numerator and **divide** by the denominator.

- To find a fraction of a fraction, **multiply the numerators** to find the new numerator, and **multiply the denominators** to find the new denominator.

## Skills

1. \( \frac{4}{5} \times \frac{2}{7} = \)

2. \( \frac{2}{5} \times \frac{4}{7} = \)

3. \( \frac{6}{17} \times \frac{3}{10} = \)

4. \( \frac{8}{25} \times \frac{5}{12} = \)

5. \( \frac{14}{15} \times \frac{3}{4} = \)

6. \( \frac{15}{8} \times \frac{2}{7} = \)

7. \( \frac{13}{17} \times \frac{1}{2} = \)

8. \( \frac{8}{9} \times \frac{6}{7} = \)

**Simplify your answers where possible. Show ALL your working.**

## Stretch

1. \( \frac{28}{45} \times \frac{5}{14} = \)

2. \( \frac{2}{5} \times \frac{3}{4} \times \frac{5}{3} = \)

3. \( \frac{4}{7} \times \frac{3}{10} \times \frac{7}{11} = \)

4. \( \frac{1}{2} \times \frac{2}{3} \times \frac{3}{4} \times \frac{4}{5} \times \frac{5}{6} = \)

You need to **read** and **learn** the **Literacy** and **Memory** sections, **look up** answers to the **Research** section, **answer all** questions from the **Skills** section, and (unless you have already spent more than 45 minutes on this homework) **attempt** the **Stretch** section. Answers can be written on the sheet or in your book if you need more space.
### Literacy

\[ \frac{3}{4} \] means the same as \[ 3 \div 4 \]

This means that **multiplying by** \( \frac{3}{4} \)

is the same as \( \times 3 \) and \( \div 4 \)

\[ \frac{3}{4} \text{ of } \frac{2}{3} \] means the same as \( \frac{3}{4} \times \frac{2}{3} \)

which is \( \frac{3 \times 2}{4 \times 3} = \frac{6}{12} = \frac{1}{2} \)

### Research

What is the definition of ‘factorial’?

Note: ‘7 factorial’ is written \( 7! \) (the symbol is as an exclamation mark).

\[ n! = n(n-1)(n-2) \ldots (2)(1) \]

Use your definition to find:

\[ 3! = 3 \times 2 \times 1 = 6 \]
\[ 5! = 5 \times 4 \times 3 \times 2 \times 1 = 120 \]
\[ \frac{3!}{5!} = \frac{3 \times 2 \times 1}{3 \times 2 \times 1} = 5 \times = 20 \]

### Memory

- To find a fraction of any number, **multiply** by the numerator and **divide** by the denominator.

- To find a fraction of a fraction, **multiply the numerators** to find the new numerator, and **multiply the denominators** to find the new denominator.

### Skills

1. \( \frac{4}{5} \times \frac{2}{7} = \frac{8}{35} \)

2. \( \frac{2}{5} \times \frac{4}{7} = \frac{8}{35} \)

3. \( \frac{6}{17} \times \frac{3}{10} = \frac{18}{170} = \frac{9}{85} \)

4. \( \frac{8}{25} \times \frac{5}{12} = \frac{40}{300} = \frac{2}{15} \)

5. \( \frac{14}{15} \times \frac{3}{4} = \frac{42}{60} = \frac{7}{10} \)

6. \( \frac{15}{8} \times \frac{2}{7} = \frac{30}{56} = \frac{15}{28} \)

7. \( \frac{13}{17} \times \frac{1}{2} = \frac{13}{34} \)

8. \( \frac{8}{9} \times \frac{6}{7} = \frac{48}{63} = \frac{16}{21} \)

### Stretch

1. \( \frac{28}{45} \times \frac{5}{14} = \frac{2}{9} \)

2. \( \frac{2}{5} \times \frac{3}{4} \times \frac{5}{3} = \frac{1}{2} \)

3. \( \frac{4}{7} \times \frac{3}{10} \times \frac{7}{11} = \frac{6}{55} \)

4. \( \frac{1}{2} \times \frac{2}{3} \times \frac{3}{4} \times \frac{4}{5} \times \frac{5}{6} = \frac{1}{6} \)

### Notes

You need to read and learn the Literacy and Memory sections, look up answers to the Research section, answer all questions from the Skills section, and (unless you have already spent more than 45 minutes on this homework) attempt the Stretch section. Answers can be written on the sheet or in your book if you need more space.