Multiplying Fractions Homework

No calculator!

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 $\div 4$

$\frac{3}{4}$ **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:

$3! =$ $\qquad$ $5! =$ $\qquad$ $\frac{5!}{3!} =$ $\qquad$ $\frac{3!}{5!} =$

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.

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Literacy

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Research

What is the definition of **'factorial'**?
Note: '7 factorial' is written 7! (the symbol is as an exclamation mark).

$$n! = n(n-1)(n-2) \dots (2)(1)$$

Use your definition to find:

$3! = 3 \times 2 \times 1 = 6$

$5! = 5 \times 4 \times 3 \times 2 \times 1 = 120$

$\frac{5!}{3!} = \frac{5 \times 4 \times 3 \times 2 \times 1}{3 \times 2 \times 1} = 5 \times = 20$

$\frac{3!}{5!} = \frac{1}{20}$

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

Simplify your answers where possible. Show ALL your working.

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

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.