

COMPÉTENCE N9 : MULTIPLIER DES FRACTIONS

Rappel : Soient a , b , c et d quatre nombres relatifs (avec b et d non nuls) : $\frac{a}{b} \times \frac{c}{d} = \frac{a \times c}{b \times d}$

EXERCICE 1

Effectuer les multiplications suivantes :

$\frac{2}{5} \times \frac{6}{7} = \frac{2 \times 6}{5 \times 7} = \frac{12}{35}$	$\frac{4}{9} \times \frac{8}{9} = \frac{4 \times 8}{9 \times 9} = \frac{32}{81}$	$\frac{12}{7} \times \frac{4}{5} = \frac{48}{35}$	$6 \times \frac{4}{7} = \frac{24}{7}$	$\frac{5}{8} \times 9 = \frac{45}{8}$	$13 \times \frac{2}{9} = \frac{26}{9}$
$\frac{-1}{4} \times \frac{5}{9} = \frac{-5}{36}$	$\frac{3}{-7} \times \frac{5}{-2} = \frac{15}{14}$	$\frac{-11}{-3} \times \frac{-4}{-9} = \frac{44}{27}$	$5 \times \frac{-4}{11} = \frac{-20}{11}$	$\frac{-5}{2} \times (-3) = \frac{15}{2}$	

EXERCICE 2

Effectuer les multiplications suivantes, et donner le résultat sous la forme d'une fraction simplifiée :

$\frac{4}{\cancel{8}} \times \frac{\cancel{8}}{5} = \frac{..4..}{..5..}$	$\frac{-2}{\cancel{3}} \times \frac{\cancel{3}}{17} = \frac{..-2..}{..17..}$	$\frac{\cancel{8}}{11} \times \frac{-13}{\cancel{16}} = \frac{..-13..}{..22..}$ $\cancel{8} \times 2$	$\frac{\cancel{2}}{\cancel{8}} \times \frac{-\cancel{8}}{\cancel{2}} = \frac{..-1..}{...1..}$	$\frac{\cancel{5}}{8} \times \frac{-3}{-\cancel{5}} = \frac{...3..}{...8..}$
$\frac{-1}{\cancel{4}} \times \frac{\cancel{4}}{9} = \frac{..-1..}{..9..}$	$\cancel{7} \times \frac{5}{\cancel{7}} = \frac{..5...}{..1...}$	$\frac{11}{-\cancel{8}} \times \cancel{8} = \frac{..11..}{...-1..}$	$\cancel{11} \times \frac{-4}{\cancel{11}} = \frac{...-4..}{..1..}$	$\frac{-5}{\cancel{3}} \times (-\cancel{3}) = \frac{..5...}{..1...}$

$$\frac{\cancel{8} \times (-13)}{11 \times \cancel{8} \times 2}$$

EXERCICE 3

Effectuer les multiplications suivantes en prenant soin de simplifier avant de calculer, et donner le résultat sous la forme d'une fraction simplifiée :

$\frac{4}{9} \times \frac{18}{7} = \frac{\cancel{4} \times \cancel{8} \times 2}{\cancel{8} \times 7} = \frac{8}{7}$	$\frac{2}{9} \times \frac{3}{14} = \frac{\cancel{2} \times \cancel{3}}{\cancel{3} \times 3 \times \cancel{2} \times 7} = \frac{1}{21}$	$\frac{8}{10} \times \frac{15}{16} = \frac{\cancel{8} \times \cancel{3} \times \cancel{5}}{2 \times \cancel{5} \times \cancel{8} \times 2} = \frac{3}{4}$
$\frac{-2}{9} \times \frac{3}{8} = \frac{\cancel{-2} \times \cancel{3}}{\cancel{3} \times 3 \times 4 \times 2} = \frac{-1}{12}$	$\frac{-6}{-4} \times \frac{-8}{9} = \frac{\cancel{6} \times \cancel{2} \times (-4) \times 2}{\cancel{4} \times 3 \times 3} = \frac{-4}{3}$	$\frac{4}{-6} \times \frac{-3}{-2} = \frac{\cancel{2} \times \cancel{2} \times (-3)}{(-3) \times \cancel{2} \times \cancel{2}} = \frac{1}{-1}$
$\frac{-21}{-12} \times \frac{15}{14} = \frac{\cancel{-3} \times \cancel{7} \times 3 \times 5}{\cancel{-3} \times 4 \times \cancel{2} \times \cancel{7}} = \frac{15}{8}$	$\frac{-7}{-4} \times \frac{-18}{28} = \frac{\cancel{-7} \times (-9) \times \cancel{2}}{\cancel{-2} \times 2 \times \cancel{7} \times 4} = \frac{-9}{8}$	$\frac{42}{63} \times \frac{-18}{36} = \frac{\cancel{6} \times \cancel{7} \times \cancel{6} \times (-3)}{\cancel{3} \times \cancel{7} \times \cancel{6} \times \cancel{6}} = \frac{-1}{3}$ 3×3
$\frac{3}{7} \times \frac{15}{12} \times \frac{7}{5} = \frac{\cancel{3} \times \cancel{5} \times \cancel{7}}{\cancel{7} \times \cancel{3} \times 4 \times \cancel{5}} = \frac{3}{4}$	$\frac{-9}{4} \times \frac{8}{6} \times \frac{1}{3} = \frac{\cancel{-3} \times \cancel{3} \times 4 \times \cancel{2} \times 1}{4 \times \cancel{3} \times \cancel{2} \times \cancel{3} \times 1} = \frac{-1}{1}$	$\frac{8}{15} \times \frac{5}{3} \times 9 = \frac{\cancel{8} \times \cancel{5} \times \cancel{3} \times 3}{\cancel{3} \times \cancel{5} \times 3} = \frac{8}{1}$
$\frac{4}{15} \times \frac{-21}{6} \times \frac{10}{-14} = \frac{\cancel{2} \times \cancel{2} \times \cancel{3} \times (-7) \times 5 \times 2}{\cancel{3} \times \cancel{5} \times \cancel{2} \times 3 \times (-7) \times \cancel{2}} = \frac{2}{3}$	$\frac{-14}{30} \times (-7) \times \frac{48}{-35} = \frac{(-7) \times \cancel{2} \times (-7) \times \cancel{6} \times 8}{5 \times \cancel{6} \times (-7) \times 5} = \frac{-112}{25}$	