

Definición de División:  $\frac{a}{b} = a \cdot \frac{1}{b}$

Recíproco del producto:  $\frac{1}{ab} = \frac{1}{a} \cdot \frac{1}{b}$

Cualquier multiplicación de Fracciones se puede tratar de la siguiente manera:

$$\begin{aligned}\frac{a}{b} \cdot \frac{c}{d} &= a \cdot \frac{1}{b} \cdot c \cdot \frac{1}{d} = (ac) \cdot \left( \frac{1}{b} \cdot \frac{1}{d} \right) \\ &= ac \cdot \frac{1}{bd} = \frac{ac}{bd}\end{aligned}$$

Problemas (personal)

4.8)  $2 \cdot \frac{1}{3} = \boxed{\frac{2}{3}}$

4.9)  $3 \cdot \frac{4}{5} = 3 \cdot 4 \cdot \frac{1}{5} = 12 \cdot \frac{1}{5} = \boxed{\frac{12}{5}}$

4.10)  $66666 \cdot \frac{7}{6}.$

(a)  $66666 \cdot \frac{7}{6} = 66666 \cdot 7 \cdot \frac{1}{6} = \frac{66666 \cdot 7}{6}$

(b)  $\frac{66666 \cdot 7}{6} = 11111 \cdot 7 = \boxed{77777}.$

$$4.11) \quad \frac{1}{3} \cdot \frac{1}{2} = \frac{1}{6}$$

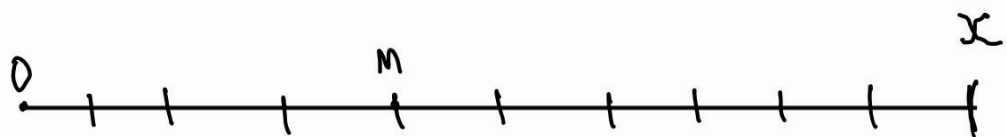
$$4.12) \quad \frac{2}{3} \cdot \frac{4}{5} = \frac{2 \cdot 4}{3 \cdot 5} = \frac{8}{15}$$

$$4.13) \quad \frac{35}{6} \cdot \frac{48}{7} = \frac{35 \cdot 48}{6 \cdot 7} = \quad 5 \cdot 8 = \boxed{40}$$

$$4.14) \quad (a) \quad \frac{2}{3} \cdot 90 = 2 \cdot 30 = \boxed{60}$$

$$(b) \quad \frac{3}{4} \cdot \frac{11}{8} = \frac{33}{32}$$

**Idea:** Cuando multiplicamos por una fracción, estamos dividiendo el número en  $n$  partes iguales y determinando la posición  $m$ .  $\left( \frac{m}{n} \cdot x \right)$



hay  $n$  líneas (incluyendo  $x$ ).

$$4.15) \quad 160 \cdot \frac{3}{5} = 32 \cdot 3 = 96.$$

$$96 \cdot \frac{3}{4} = 24 \cdot 3 = \boxed{72}$$

## Ejercicios

$$4.2.1) \quad (a) \quad \frac{5}{6} \cdot \frac{11}{7} = \frac{5 \cdot 11}{6 \cdot 7} = \boxed{\frac{55}{42}}$$

$$(b) \quad \frac{1}{5} \cdot (-75) \cdot \frac{2}{3} = -(15) \cdot \left(\frac{2}{3}\right) \\ = \boxed{-10}$$

$$(c) \quad \left(-\frac{80}{7}\right) \left(\frac{14}{9}\right) \left(-\frac{63}{16}\right) = \frac{\overset{5}{80} \cdot \overset{2}{14} \cdot \overset{7}{63}}{\underset{1}{7} \cdot \underset{1}{9} \cdot \underset{1}{16}} = \boxed{70}$$

$$4.2.2) \quad \frac{\overset{2}{80} \cdot \overset{2}{28} \cdot \overset{2}{26} \cdot \overset{2}{24}}{\underset{1}{12} \cdot \underset{1}{13} \cdot \underset{1}{14} \cdot \underset{1}{18}} = 2^4 = \boxed{16}$$

$$4.2.3) \quad \frac{\overset{1}{3} \cdot \overset{1}{8}}{\underset{1}{4} \cdot \underset{1}{12}} \times \frac{\overset{1}{4} \cdot \overset{1}{9} \cdot \overset{1}{11}}{\underset{1}{3} \cdot \underset{1}{5} \cdot \underset{1}{7}} = \boxed{1}$$

$$4.2.4) \quad \frac{3}{\underset{1}{4}} \cdot \frac{\overset{2}{8}}{\underset{1}{9}} \cdot \frac{20}{180} = 3 \cdot 2 \cdot 20 = \boxed{120}$$

$$4.2.5) \quad \frac{1}{2} \cdot \frac{2}{3} \cdot \frac{3}{4} \cdot \frac{4}{5} \cdot 100 = 20$$

$$4.2.6) \quad \frac{5}{8} \cdot \frac{8}{11} \cdot \frac{11}{14} \cdot \frac{14}{17} \cdot \frac{17}{20} \cdot \frac{20}{23} = \frac{5}{23}$$

4.2.7)

$$(a) \quad \frac{5}{6} \cdot ? = \frac{5}{7}$$

$$x = \frac{8}{7} \cdot \frac{6}{8} = \frac{6}{7}$$

$$(b) \quad \frac{5}{6} \cdot x = \frac{4}{7}$$

$$\frac{4 \cdot 6}{5 \cdot 7} = \frac{24}{35}$$

$$\frac{5}{6} \cdot \frac{4 \cdot 6}{8 \cdot 7} = \frac{4}{7}$$

4.2.8)

$$\frac{a}{b} = \frac{3}{4}$$

$$\frac{b}{c} = \frac{11}{13}$$

$$\frac{a}{c} = ?$$

$$a = \frac{3b}{4}$$

$$c = \frac{13b}{11}$$

$$\frac{3 \cdot 11}{4 \cdot 13} = \frac{33}{52}$$

$$\begin{aligned} \frac{3b}{4} \div \frac{13b}{11} &= \frac{3b}{4} \cdot \frac{11}{13b} \\ &= \frac{3 \cdot 11}{4 \cdot 13} \end{aligned}$$