

$$1) \left(1 - \frac{1}{2}\right) \left(1 - \frac{1}{3}\right) \left(1 - \frac{1}{4}\right) \left(1 - \frac{1}{5}\right)$$

$$\left(1 - \frac{1}{2}\right) \left(1 - \frac{1}{3}\right)$$

$$\frac{1}{1} - \frac{1}{2} = \frac{2}{2} - \frac{1}{2} = \frac{2-1}{2} = \frac{1}{2}$$

$$\frac{a}{b} - \frac{c}{d} = \frac{ad - cb}{bd}$$

$$\frac{3}{8} - \frac{2}{4} = \frac{3 \cdot 4 - 2 \cdot 8}{4 \cdot 8} = \frac{12 - 16}{32}$$

$$\frac{2}{4} = \frac{\cancel{2}}{\cancel{2} \cdot 2} = \frac{1}{2}$$

$$\left(3 - \frac{1}{2}\right) = \frac{6}{2} - \frac{1}{2} = \frac{6-1}{2} = \frac{5}{2}$$

$$\frac{2}{2} = \frac{\cancel{2}}{\cancel{2}} = \frac{1}{1} = 1$$

$$3 = 3 \cdot \frac{2}{2} = \frac{6}{2}$$

$$3 = \frac{3}{1} = \frac{6}{2} = \frac{9}{3} = \dots$$

$$\left(1 - \frac{1}{2}\right) \left(1 - \frac{1}{3}\right) \left(1 - \frac{1}{4}\right) \left(1 - \frac{1}{5}\right)$$

$$\frac{1}{2}$$



$$\left(1 - \frac{1}{3}\right) = \left(\frac{3}{3} - \frac{1}{3}\right) = \frac{3-1}{3} = \frac{2}{3}$$

$$\rightarrow \left(1 - \frac{1}{4}\right) = \left(\frac{4}{4} - \frac{1}{4}\right) = \frac{4-1}{4} = \frac{3}{4}$$

$$\rightarrow \left(1 - \frac{1}{5}\right) = \frac{4}{5}$$

$$\begin{aligned} & \left(1 - \frac{1}{2}\right) \left(1 - \frac{1}{3}\right) \left(1 - \frac{1}{4}\right) \left(1 - \frac{1}{5}\right) \\ &= \left(\frac{1}{2}\right) \left(\frac{2}{3}\right) \left(\frac{3}{4}\right) \left(\frac{4}{5}\right) = \frac{\cancel{2} \cdot \cancel{3} \cdot \cancel{4}}{\cancel{2} \cdot \cancel{3} \cdot \cancel{4} \cdot 5} = \frac{1}{5} \end{aligned}$$

Implicar

$$\frac{24}{70} = \frac{\cancel{2} \cdot 12}{\cancel{2} \cdot 35} = \frac{4 \cdot 3}{5 \cdot 7} = \frac{12}{35} = \dots$$

2)

$$\begin{aligned} & \left(1 - \frac{1}{2}\right) \left(1 + \frac{1}{3}\right) \left(1 - \frac{1}{4}\right) \left(1 + \frac{1}{5}\right) \\ &= \left(\frac{1}{2}\right) \left(\frac{\cancel{4}}{\cancel{3}}\right) \left(\frac{\cancel{3}}{\cancel{4}}\right) \left(\frac{6}{5}\right) = \frac{1 \cdot \cancel{4} \cdot \cancel{3} \cdot 6}{2 \cdot \cancel{3} \cdot \cancel{4} \cdot 5} \\ &= \frac{1}{2} \cdot \frac{6}{5} = \frac{\cancel{3} \cdot 2}{2 \cdot 5} = \frac{3}{5} \end{aligned}$$

$$2) \quad \left(1 - \frac{x}{2}\right) \left(1 + \frac{x}{3}\right) \left(1 - \frac{1}{4}\right)$$

$$= \left(\frac{2-x}{2}\right) \left(\frac{3+x}{3}\right) \left(\frac{3}{4}\right)$$

$$= \left(\frac{2-x}{2}\right) \left(\frac{3+x}{\cancel{3}}\right) \left(\frac{\cancel{3}}{4}\right) = \left(\frac{1}{8}\right) (2-x)(3+x)$$

$$= \frac{(2-x)(3+x)}{8}$$

$$\left\{ \begin{array}{l} (2-x)(3+x) = 2 \cdot 3 + 2x - 3x - x^2 \\ = 6 + (2-3)x - x^2 \\ = 6 - x - x^2 \end{array} \right.$$

$$= \frac{(2-x)(3+x)}{8} = \frac{6-x-x^2}{8}$$

$$\left(1 - \frac{x}{2}\right) \left(1 + \frac{x}{3}\right) \left(1 - \frac{1}{4}\right) = \frac{6-x-x^2}{8}$$

$$3) \quad \left(1 - \frac{1}{2}\right) \left(1 + \frac{1}{3}\right) \left(1 - \frac{1}{4}\right) \left(1 + \frac{1}{5}\right)$$

↓

$$1 \cdot \cancel{2} \cdot \cancel{3} \cdot \cancel{4} \cdot \cancel{5} = 1$$

$$1 \cdot \frac{a}{1} = \frac{b}{1}$$

$$\downarrow$$

$$(2) \left(\frac{4}{3} \right) \left(\frac{3}{4} \right) \left(\frac{5}{6} \right)$$

$$= \frac{2 \cdot 5}{6} = \frac{10}{6}$$

$$\left(\frac{a}{b} \right)^{-1} = \frac{b}{a}$$

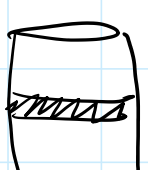
$$\left(1 - \frac{1}{2} \right)^{-1} = \left(\frac{1}{2} \right)^{-1} = 2$$


$$\left(1 + \frac{1}{5} \right)^{-1} = \left(\frac{6}{5} \right)^{-1} = \frac{5}{6}$$

$$10 : 6 = 1,6\overline{6}$$

$$\begin{array}{r} 10 \\ - 6 \\ \hline 40 \\ - 36 \\ \hline 40 \end{array}$$


- a. Todo el líquido contenido en un barril se reparte en 96 vasos iguales hasta su capacidad máxima. Se quiere verter la misma cantidad de líquido de otro barril idéntico al anterior en vasos iguales a los usados, pero solo hasta las $\frac{3}{4}$ partes de su capacidad. ¿Cuántos vasos más se necesitarán para ello?




= 96 

$B = 96 \text{ V}$

$\frac{3}{4}$



= X 

$\frac{3}{4} B = x \text{ V}$

$$\frac{3}{4} (96 \text{ V}) = x \text{ V}$$

$$\frac{3}{4} (96 \text{ V}) = x \text{ V}$$

$$\frac{3 \cdot (2 \cdot 48)}{4} \cdot \cancel{V} = x \cdot \cancel{V} \quad / \quad \frac{1}{\cancel{V}}$$

$$x = \frac{3 \cdot \cancel{2} \cdot 48}{\cancel{2} \cdot 2} = \frac{3 \cdot (\cancel{2} \cdot 24)}{\cancel{2}} = 3(20 + 4)$$

$$x = 60 + 12 = 72 //$$

- e) Valentina y Ricardo tienen la misma cantidad de dinero. Valentina compró 7 chocolates y le sobraron \$350. Ricardo compró 5 chocolates y le sobraron \$600. El precio de cada chocolate comprado por ellos es el mismo. Encuentre la ecuación que tiene como solución el precio de un chocolate \$x.

$$\$V = 7(\$c) + \$350$$

$$\$R = 5(\$c) + \$600$$

$$\$V = \$R$$

$$\boxed{7(c) + 350 = 5(c) + 600}$$

$$7c - 5c = 600 - 350$$

$$2c = 600 - 300 - 50$$

$$= 300 - 50$$

$$2c = 250$$

$$C = \frac{250}{2} = \frac{200 + 50}{2} = \frac{200}{2} + \frac{50}{2} = 100 + 25$$

$$\$ C = \$125 //$$

Valentina y Ricardo tienen la misma cantidad de dinero. Valentina compró ~~7~~⁸ chocolates y le sobraron ~~\$350~~^{\$0}. Ricardo compró ~~5~~³ chocolates y le sobraron ~~\$600~~^{\$100}. El precio de cada chocolate comprado por ellos es el mismo. Encuentre la ecuación que tiene como solución el precio de un chocolate \$x.

$$\$V = 8(\$C) = \$R = 3(\$C) + \$100$$

$$8(\$C) = 3(\$C) + \$100$$

$$8C = 3C + 100$$

$$8C - 3C = 100$$

$$5C = 100$$

$$C = \frac{100}{5} = \frac{2 \cdot 10 \cdot 5}{5} = 20 //$$

$$C = 20 //$$

b) El precio de un artículo es \$m y Pedro le entregó a la vendedora \$(n+200) para pagarlo. ¿con qué condición Pedro no podría pagarlo? (ej: $a \leq b$)

artículo \$ 10

Pedro: \$(n+200)

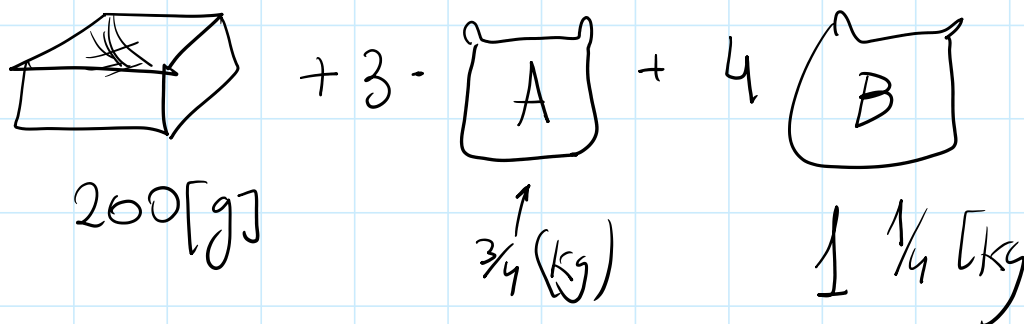
$$10 \leq n + 200 \quad / - 200$$

$$10 - 200 \leq n$$

$$\underline{1 - 190 \leq n}$$

$$-190 \leq n$$

- c. Una caja vacía tiene una masa de 200g. Se agregan 3 paquetes de $\frac{3}{4}$ kg cada uno y 4 paquetes de $1\frac{1}{4}$ kg cada uno. Cual es la masa total de la caja?



$$4500 [g] = 4,5 [kg]$$

$$\frac{1 [kg]}{1000 [g]} = 1$$

$$2200 [m] = 2,2 [km]$$

$$3,37 [km] = 3,37 \quad 1000 [m] = 3370 [m]$$

$$[km] = 1000 [m]$$

$$100 [cm] = 1 [m]$$

$$1 [plgadan] = 3,5 [cm]$$

$$170 [cm] = \frac{170}{3,5} [plgadan]$$

$$1 [plgadan] = 3,5 [cm]$$

$$\frac{1}{3,5}$$

$$1 \text{ [pulg]} = 3,5 \text{ [cm]} \quad / \quad \frac{1}{3,5}$$

$$\boxed{\frac{1}{3,5} \text{ [pulg]} = 1 \text{ [cm]}}$$

$$170 \cdot 1 \text{ [cm]} = 170 \cdot \left(\frac{1}{3,5} \text{ [pulg]} \right)$$

$$\frac{170}{3,5} \cdot \frac{10}{10} = \frac{1700}{35}$$

$$\left(\frac{170}{2} \right) = \frac{100 + 70}{2} = \frac{100}{2} + \frac{70}{2} = 50 + 35 = 85$$

$$\frac{85}{5} = \frac{80 + 5}{5} = \frac{80}{5} + \frac{5}{5} = 16 + 1 = 17$$

$$85 = 17 \cdot 5$$

$$170 = 2 \cdot 85 = 2 \cdot 5 \cdot 17$$

$$\left(\frac{1700}{35} \right) \text{ [pulg]} = \frac{1700 \cdot 10}{35} = \frac{(2 \cdot 5 \cdot 17) \cdot 10}{5 \cdot 7}$$

$$= \frac{2 \cdot 17 \cdot 10}{7} = \frac{34 \cdot 10}{7} = \frac{340}{7} \text{ [pulg]}$$

$$= \frac{2 \cdot 17 \cdot 10}{7} = \frac{34 \cdot 10}{7} = \frac{340}{7} \text{ [pkg]} //$$

$$\begin{array}{c} \text{Box} \\ 200 \text{ [g]} \end{array} + 3 \cdot \begin{array}{c} \text{Bag A} \\ \uparrow \\ \frac{3}{4} \text{ (kg)} \end{array} + 4 \cdot \begin{array}{c} \text{Bag B} \\ \downarrow \\ 1 \frac{1}{4} \text{ [kg]} \end{array}$$

$$200 \text{ [g]} \rightarrow \text{[kg]}$$

$$1000 \text{ (g)} = 1 \text{ [kg]} \quad / \quad \frac{1}{1000}$$

$$\frac{1000}{1000} \text{ [g]} = \frac{1}{1000} \text{ [kg]}$$

$$1 \text{ [g]} = \frac{1}{1000} \text{ [kg]}$$

$$200 \text{ [g]} = 200 \cdot 1 \text{ [g]} = 200 \left(\frac{1}{1000} \text{ [kg]} \right) = \frac{200}{1000} \text{ [kg]}$$

$$200 \text{ [g]} = 0,2 \text{ [kg]} //$$

$$\frac{2 \cdot 10}{10 \cdot 100} = \frac{2}{10}$$

$$M = \text{box} + 3 \cdot \text{A} + 4 \cdot \text{B}$$

$\frac{2}{10} \text{ [kg]}$
 $\frac{3}{4} \text{ [kg]}$
 $1 \frac{1}{4} \text{ [kg]}$

$$M = \frac{2}{10} \text{ [kg]} + 3 \cdot \frac{3}{4} \text{ [kg]} + 4 \cdot (1 \frac{1}{4}) \text{ [kg]}$$

$$M = \frac{2}{10} + \frac{9}{4} + 4 \left(\frac{5}{4} \right)$$

$$= \frac{2}{2 \cdot 5} + \frac{9}{4} + \frac{4 \cdot 5}{4}$$

$$M = \frac{1}{5} + \frac{9}{4} + \frac{5}{1} = \frac{4}{20} + \frac{5 \cdot 4}{20} + \frac{5 \cdot 20}{20}$$

5	10	15	(20)	← 5 · 4 = 20
4	8	12	16 (20)	← 4 · 5 = 20

$$M = \frac{4 + 5 \cdot 4 + 5 \cdot 20}{20} = \frac{4 + 45 + 100}{20}$$

$$M = \frac{149}{20} \text{ [kg]} = 7,45 \text{ [kg]}$$

$$\begin{array}{r} 149 : 20 = 7,45 \\ -140 \\ \hline 9 \end{array}$$

$$\frac{20 \cdot 5}{100}$$

$$\frac{20 \cdot 7}{140}$$

$$\begin{array}{r}
 -140 \\
 \hline
 90 \\
 -80 \\
 \hline
 100 \\
 -100 \\
 \hline
 0 //
 \end{array}$$