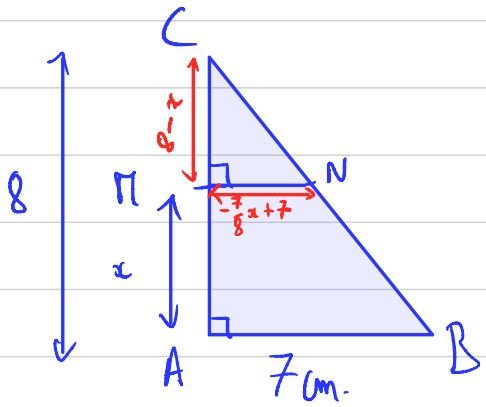
02/12/20 :

Troisième 6n2 : TD - Fonctions-algorithme

Tâche complexe : Rappel de l'exercice :



1) $0 \leq x \leq 8$ car $M \in [AC]$.

2) MN en f° de x.

$\frac{MN}{7} = \frac{8-x}{8}$.

$\frac{a}{b} = \frac{c}{d}$.

$a = \frac{bc}{d}$.

$$MN = \frac{7 \times (8-x)}{8} = \frac{56 - 7x}{8} = \frac{56}{8} - \frac{7}{8}x$$

$$= 7 - \frac{7}{8}x$$

$$= \boxed{-\frac{7}{8}x + 7.}$$

3) $f : x \longmapsto$ Aire du triangle MNC $= f(x)$.

$$f(x) = \frac{b \times h}{2} = \frac{MN \times CM}{2}$$

$$f(x) = \frac{\left(-\frac{7}{8}x + 7\right) \times (8-x)}{2}$$

$(a+b)(c+d)$
$= ac + ad + bc + bd$.

$\frac{7+8}{8}$

$$f(x) = \frac{-\frac{7}{8}x \times 8 + \left(-\frac{7}{8}x\right) \times (-x) + 7 \times 8 + 7 \times (-x)}{2}$$

$$f(x) = \frac{-7x + \frac{7}{8}x^2 + 56 - 7x}{2}$$

$$f(x) = \frac{\frac{7}{8}x^2 - 14x + 56}{2}$$

$$\frac{a+b}{c} = \frac{a}{c} + \frac{b}{c}.$$

$$f(x) = \frac{\frac{7}{8}x^2}{\frac{2}{1}} - \frac{14x}{2} + \frac{56}{2}.$$

$$\frac{a+b+f}{c} =$$

$$\frac{14x}{2} = \frac{14}{2} \times x.$$

$$f(x) = \frac{7}{8}x^2 \times \frac{1}{2} - 7x + 28.$$

$$\boxed{f(x) = \frac{7}{16}x^2 - 7x + 28.}$$

$$f(8) = \frac{7}{16} \times 8^2 - 7 \times 8 + 28$$

$$f(8) = \frac{7 \times 8 \times 8}{8 \times 2} - 7 \times 8 + 28$$

$x = 3$

$$f(3) = \frac{7}{16} \times 3^2 - 7 \times 3 + 28 = \frac{63}{16} + \frac{7 \times 16}{1 \times 16} = 28 - 56 + 28 = 0.$$

$$\overset{5}{\times}\frac{16}{9}{}^{14^4}$$

$$= \frac{63}{16} + \frac{112}{16} = \frac{175}{16}$$

175 | 16
16 | 10,9
1 50
144
60...

$\simeq 10{,}9\ cm^2.$

4) $f(x) = 7.$

$$\frac{7}{16}x^2 - 7x + 28 = 7.$$

$$\frac{7}{16}x^2 - 7x + 28 - 7 = 0.$$

$$7 \times \frac{1}{16}x^2 - 7 \times x + 7 \times 3 = 0.$$

$a \times b + a \times c = a \times (b + c)$

$$7\left(\frac{1}{16}x^2 - x + 3\right) = 0.$$

$a \times b = 0$

$a = 0$ ou $b = 0$.

$$\frac{1}{16}x^2 - x + 3 = 0.$$

$$\left(\frac{1}{4}x\right)^2 - 2 \times \frac{1}{4}x \times 2 + 2^2 - 2^2 + 3 = 0.$$

$a^2 - 2ab + b^2$

$(a-b)^2 = a^2 - 2ab + b^2$

$$\left(\frac{1}{4}x - 2\right)^2 - 4 + 3 = 0$$

$x^2 = 1$

$$\left(\frac{1}{4}x - 2\right)^2 = 1.$$

$$\frac{1}{4}x - 2 = 1 \quad \text{ou} \quad \frac{1}{4}x - 2 = -1$$

$$\frac{1}{4}x = 1 + 2 \qquad \frac{1}{4}x = -1 + 2.$$

$$\frac{1}{4}x = 3. \qquad \frac{1}{4}x = 1.$$

$x = 3 \times 4$

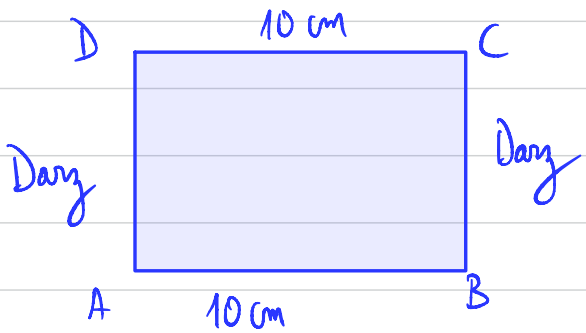
$x = 12$.

impossible car $0 \leq x \leq 8$

$x = 4.$ OK.

n°6057.

1)a)



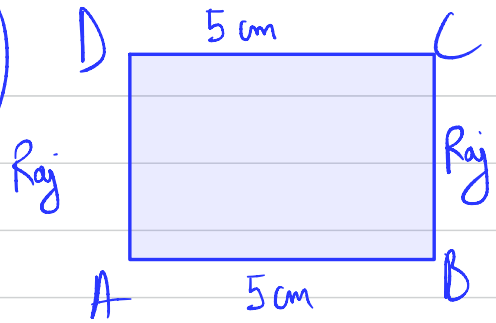
$2 \times (10 + \text{Darg}) = 31.$

$$10 + \text{Darg} = \frac{31}{2}$$

$10 + \text{Darg} = 15,5$

Darg $= 15,5 - 10 = 5,5$ cm.

b)



$2x(5+Raj) = 31$

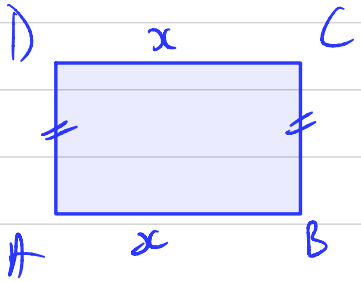
$5 + Raj = \frac{31}{2}$

$5 + Raj = 15,5$

$Raj = 15,5 - 5$

$\boxed{Raj = 10,5 \text{ cm}}$

1) c)



$2 \times BC + 2x = 31$.

$2BC = 31 - 2x$.

$BC = \frac{31-2x}{2}$

$BC = \frac{31}{2} - \frac{2x}{2}$

$\boxed{BC = 15,5 - x}$.

d) $A = L \times l$

$A = x \times (15,5 - x)$

$\boxed{A = 15,5x - x^2}$.

2) a) $f(x) = x(15,5 - x)$ $\quad f(4) = 4 \times (15,5 - 4)$

$f(4) = 4 \times 11,5$

$= 46 \text{ cm}^2$.

b) $f(5) = 5(15,5 - 5)$

$= 5 \times 10,5 = 52,5 \text{ cm}^2$.