NPA 2024 CORRIGÉ 1ère partie

ex1 (a) $-(5-5\cdot5) = -(5-25) = -(-20) = 20$

(b) $-2+3\cdot(-5) = -2-15 = -17$

(c) $-5-[(-3):(-1)-4] = -5-[3-4] = -5-[-1] = -5+1 = -4$

ex2 (a) $\frac{5}{3}-\frac{1}{6}+\frac{3}{4} = \frac{20}{12}-\frac{2}{12}+\frac{9}{12} = \frac{27}{12} = \frac{9}{4}$

(b) $\frac{5}{4}:\frac{3}{10} = \frac{5}{2\cancel{4}}\cdot\frac{\cancel{10}^{5}}{3} = \frac{25}{6}$

(c) $\frac{4}{5}-\frac{\cancel{5}^{1}}{\cancel{4}}\cdot\frac{1}{\cancel{5}_{1}}+\frac{2}{\cancel{10}\,5} = \frac{4}{5}-\frac{1}{4}+\frac{1}{5} = \frac{16}{20}-\frac{5}{20}+\frac{4}{20} = \frac{15}{20} = \frac{3}{4}$

ex3 (a) $2a^5\cdot3a^2 = 6a^7$

(b) $\left(\frac{a}{3}\right)^2 = \frac{a^2}{9}$

ex4 (a) $2x-3(5x+1) = 2x-15x-3 = -13x-3$

(b) $(2-3x)(1+5x) = 2+10x-3x-15x^2 = 2+7x-15x^2$

(c) $(2a+b-c)-(a-b+3c) = 2a+b-c-a+b-3c = a+2b-4c$

ex5

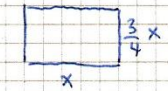
(a) $8x+3 = 2x-9 \quad |-2x;-3$
$6x = -12 \quad |:6$
$\boxed{x=-2}$

(b) $\frac{x}{2}+1 = 2x-\frac{1}{3} \quad |\cdot2\cdot3$
$3x+6 = 12x-2 \quad |-3x;+2$
$8 = 9x \quad |:9$
$\boxed{x=\frac{8}{9}}$

(c) $\frac{2}{3}(x-2)=5$
$\frac{2(x-2)}{3}=5$
$\frac{2x-4}{3}=5 \quad |\cdot3$
$2x-4=15 \quad |+4$
$2x=19 \quad |:2$
$\boxed{x=\frac{19}{2}}$

NPA 2024 CORRIGÉ 2ème partie -1-

ex1

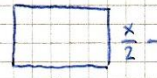


Aire = 432 cm²

$\frac{3}{4}x\cdot x = 432$
$\frac{3}{4}\cdot x^2 = 432 \quad |\cdot4$
$3x^2 = 1728 \quad |:3$
$x^2 = 576 \quad |\sqrt{}$
$x = 24$

⇒ longueur = 24 m et largeur = $\frac{3}{4}\cdot24 = 18$ m

ex2

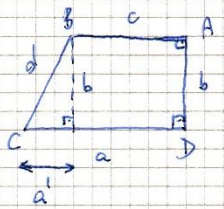


p = 110 m

$2x+2\cdot\left(\frac{x}{2}-1\right) = 110 \quad |C$
$2x+x-2 = 110 \quad |C;+2$
$3x = 112 \quad |:3$
$x = 37,3\overline{3}$

⇒ longueur = 37,33 m et largeur = $\frac{x}{2}-1 = 17,66$ m

ex3



$a = 15$ cm $\quad b = 7$ cm $\quad c = 12$ cm

$p = ?$

$a' = a - c$

$a' = 15 - 12$

$\boxed{a' = 3 \text{ cm}}$

$d^2 = a'^2 + b^2$

$d^2 = 3^2 + 7^2$

$d^2 = 9 + 49$

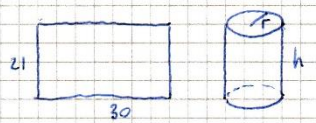
$d^2 = 58$

$\boxed{d = 7{,}62 \text{ cm}}$

$p = a + b + c + d$

$p = 15 + 7 + 12 + 7{,}62 \Rightarrow \boxed{p = 41{,}62 \text{ cm}}$

ex4



$h = 21$ cm

$2\pi r = 30$

$r = \frac{30}{2\pi}$

$\boxed{r = 4{,}77 \text{ cm}}$

$V = \pi r^2 \cdot h$

$V = \pi \cdot 4{,}77^2 \cdot 21$

$\boxed{V = 1504{,}01 \text{ cm}^3}$