Correction exercices Chapitre 1

Ex 1

1\. * $A = \dfrac{(B+b)\times h}{2}$

$\Big\downarrow \times 2$

$2.A = (B+b)\times h$

$\Big\downarrow \div (B+b)$

$$\boxed{\frac{2.A}{B+b} = h}$$

* $A = \dfrac{(B+b)\times h}{2}$

$\Big\downarrow \times 2$

$2A = (B+b)\times h$

$\Big\downarrow \div h$

$\dfrac{2A}{h} = B+b$

$\Big\downarrow -b$

$$\boxed{\frac{2A}{h} - b = B}$$

2\. $v = -g\times t + v_0 \times \sin\alpha$

$\Big\downarrow - v_0\times\sin\alpha$

$v - v_0\times\sin\alpha = -g.t$

$\Big\downarrow \div(-g)$

$\dfrac{v - v_0\times\sin\alpha}{-g} = t$

$-\dfrac{v - v_0\sin\alpha}{g} = t$

$\Big\downarrow$ on développe le signe $-$ au numérateur (en fait -1)

$\dfrac{-v + v_0\sin\alpha}{g} = t$

$$\boxed{t = \frac{v_0\sin\alpha - v}{g}}$$

3. * $d = e \times i \times \left(1 - \frac{1}{n}\right)$

$\div \left(1 - \frac{1}{n}\right)$

$$\frac{d}{1 - \frac{1}{n}} = e \times i$$

$\div\, i$

$$\frac{1}{i} \times \frac{d}{1 - \frac{1}{n}} = e$$

$$\left(e = \frac{d}{i\left(1 - \frac{1}{n}\right)} \right)$$

* $d = e \times i \times \left(1 - \frac{1}{n}\right)$

$\div\, e \times i$

$$\frac{d}{e \times i} = 1 - \frac{1}{n}$$

-1

$$\frac{d}{e \times i} - 1 = -\frac{1}{n}$$

$\times\, n$

$$n\left(\frac{d}{e \times i} - 1\right) = -1$$

$\div \left(\frac{d}{e \times i} - 1\right)$

$$n = \frac{-1}{\frac{d}{e \times i} - 1}$$

on multiplie par -1 le numérateur et on multiplie par -1 le dénominateur

$$\boxed{n = \frac{1}{1 - \frac{d}{e \times i}}}$$

5. $v_n = 2 \times u_n + 6$

$$v_n - 6 = 2 \times u_n \quad \big) -6$$

$$\frac{v_n - 6}{2} = u_n \quad \big) \div 2$$

6. $v_n = \dfrac{2}{3 - u_n}$

$$(3 - u_n) \times v_n = 2 \quad \big) \times (3 - u_n)$$

on développe

$$3 \times v_n - u_n \times v_n = 2$$

$$-u_n \times v_n = 2 - 3 \times v_n \quad \big) -3v_n$$

$$v_n = \frac{2 - 3 \times v_n}{-u_n} \quad \big) \div (-u_n)$$

$\times(-1)$ numérateur
$\times(-1)$ dénominateur

$$v_n = \frac{3 \times v_n - 2}{u_n}$$

OU

$$(3 - u_n) \times v_n = 2$$

$$3 - u_n = \frac{2}{v_n} \quad \big) \div v_n$$

$$-u_n = \frac{2}{v_n} - 3 \quad \big) -3$$

$$u_n = 3 - \frac{2}{v_n} \quad \big) \times (-1)$$

7. $v_n = \dfrac{2u_n - 1}{3u_n + 4}$

$$(3u_n + 4) \times v_n = 2u_n - 1 \quad \big) \times (3u_n + 4)$$

on développe

$$3u_n \times v_n + 4v_n = 2u_n - 1$$

$$3u_n - 2u_n = -1 - 4v_n \quad \big) -2u_n \text{ et } -4v_n$$

$$u_n = -(1 + 4v_n)$$

Ex2:

1. $A = \pi R^2$

$\frac{A}{\pi} = R^2$ $\div \pi$

$\sqrt{\frac{A}{\pi}} = R$ $\sqrt{}$

2. * $F = G \frac{m_1 \times m_2}{d^2}$ $\times d^2$

$F \times d^2 = G \times m_1 \times m_2$ $\div (G \times m_2)$

$\frac{F \times d^2}{G \times m_2} = m_1$

* $F = G \frac{m_1 \times m_2}{d^2}$ $\times d^2$

$F \times d^2 = G \times m_1 \times m_2$ $\div F$

$d^2 = \frac{G \times m_1 \times m_2}{F}$ $\sqrt{}$

$d = \sqrt{\frac{G \times m_1 \times m_2}{F}}$

3. * $a^2 + b^2 = c^2$ $\sqrt{}$

$\sqrt{a^2 + b^2} = c$

* $a^2 + b^2 = c^2$ $\big) -b^2$

$a^2 = c^2 - b^2$ $\big) \sqrt{\ }$

$\boxed{a = \sqrt{c^2 - b^2}}$

4. $v_n = u_n^2 - 4$ $\big) -4$

$v_n + 4 = u_n^2$ $\big) \sqrt{\ }$

$\boxed{u_n = \sqrt{v_n + 4}}$

5. * $T = 2\pi\sqrt{\dfrac{L}{g}}$ $\big) \div 2\pi$

$\dfrac{T}{2\pi} = \sqrt{\dfrac{L}{g}}$ $\big) (\quad)^2$

$\dfrac{T^2}{4\pi^2} = \dfrac{L}{g}$ $\big) \times g$

$\boxed{\dfrac{T^2 \times g}{4\pi^2} = L}$

* $T = 2\pi\sqrt{\dfrac{L}{g}}$

$\dfrac{T}{2\pi} = \sqrt{\dfrac{L}{g}}$

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$$\frac{T^2}{4\pi^2} = \frac{L}{g}$$

$$T^2 \times g = 4\pi^2 \times L$$

$$\boxed{g = \frac{4\pi^2 \times L}{T^2}}$$