

Révision des chapitres 1 et 2 (Exercices de base)

SOMMET p. 39 à 41 #1, 2, 3, 4, 6, 7, 8, 9, 11, 13, 14 défi, ...

#1 C

$$\begin{aligned} & 150 \text{ micromètres} \\ & = 1,5 \times 10^2 \text{ micromètres} \\ & = 1,50 \times 10^2 \times 10^{-6} \text{ mètres} \\ & = 1,50 \times 10^{-4} \text{ mètres} \end{aligned}$$

#2 B

$$\begin{array}{ll} \text{a) } c^2 = a^2 + b^2 & \text{b) } c^2 = a^2 + b^2 \quad \dots \\ c^2 = 3^2 + 4^2 & c^2 = 20^2 + 25^2 \\ \sqrt{c^2} = \sqrt{25} & \sqrt{c^2} = \sqrt{1025} \\ c = 5 & c \approx 32,01 \\ (3, 4, 5) \text{ triplet} & (20, 25, 36) \text{ Pas un triplet} \end{array}$$

#3 C

$$\frac{3^5 \cdot 3^2}{3^8} = \frac{3^{5+2}}{3^8} = \frac{3^7}{3^8} = 3^{7-8} = 3^{-1} = \frac{1}{3}$$

#4 D

$$\text{a) } \sqrt{\frac{7^{10}}{7^{-6}}} = \sqrt{7^{10-(-6)}} = \sqrt{7^{16}} = (7^{16})^{\frac{1}{2}} = 7^{\frac{16}{2}} = 7^8$$

$$\text{b) } \frac{7^{12} \cdot 7^{16}}{7^7} = \frac{7^{12+16}}{7^7} = \frac{7^{28}}{7^7} = 7^{28-7} = 7^{21}$$

$$\text{c) } \frac{7^{15}}{7^8} \div \frac{7^{-4}}{7^{-1}} = 7^{15-8} \div 7^{-4-(-1)} = 7^7 \div 7^{-3} = 7^{7-(-3)} = 7^{10}$$

$$\text{d) } \sqrt[3]{\left(\frac{7^8}{7^5}\right)^4} = \sqrt[3]{(7^3)^4} = \sqrt[3]{7^{12}} = (7^{12})^{\frac{1}{3}} = 7^4$$

#6 C

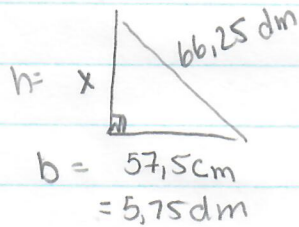
$$\begin{aligned}
 a) & \underline{18,1 \text{ Mm}} \\
 & = 1,8 \times 10^1 \text{ Mm} \\
 & = 1,8 \times 10^1 \times 10^6 \text{ m} \\
 & = 1,8 \times 10^7 \text{ m}
 \end{aligned}$$

$$\begin{aligned}
 b) & \underline{6,5 \text{ mL}} \\
 & = 6,5 \times 10^{-3} \text{ L}
 \end{aligned}$$

$$\begin{aligned}
 c) & \underline{1\,000\,000 \text{ kg}} \\
 & = 1 \times 10^6 \text{ kg} \\
 & = 1 \times 10^6 \times 10^3 \text{ g} \\
 & = 1 \times 10^9 \text{ g}
 \end{aligned}$$

$$\begin{aligned}
 d) & \underline{952 \text{ nanosecondes}} \\
 & = 9,52 \times 10^{-2} \text{ nanosecondes} \\
 & = 9,52 \times 10^{-2} \times 10^{-9} \text{ secondes} \\
 & = 9,52 \times 10^{-7} \text{ secondes}
 \end{aligned}$$

#7. A



1) Trouver x

$$c^2 = a^2 + b^2$$

$$\begin{aligned}
 66,25^2 &= x^2 + 5,75^2 \\
 -5,75^2 & \quad -5,75^2
 \end{aligned}$$

$$\sqrt{4356} = \sqrt{x^2}$$

$$66 \text{ dm} = x$$

2) Aire

$$A = \frac{b \cdot h}{2}$$

$$A = \frac{66 \cdot 5,75}{2}$$

$$A = 189,75 \text{ dm}^2$$

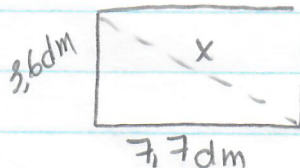
#8 B

$$A_T = 6c^2$$

(erreur d'unités, faut $A_T = 6 \cdot 6^2$

doit être en "m²".) $A_T = 6^3 \text{ m}^2$

#9 B



$$c^2 = a^2 + b^2$$

$$x^2 = 3,6^2 + 7,7^2$$

$$\sqrt{x^2} = \sqrt{72,25}$$

$$x \approx 8,5 \text{ dm}$$

#11

a) 0,35 Rép: $(\mathbb{D}), \mathbb{Q}, \mathbb{R}$

b) $\frac{9}{7}$ Rép: \mathbb{Q}, \mathbb{R}

c) $-\sqrt{121} = -11$ Rép: $\mathbb{Z}, (\mathbb{D}), \mathbb{Q}, \mathbb{R}$

d) π Rép: \mathbb{Q}' et \mathbb{R}

e) $\frac{11}{40} = 5,275$ Rép: $(\mathbb{D}), \mathbb{Q}, \mathbb{R}$

f) $\sqrt{225} = 15$ Rép: $\mathbb{N}, \mathbb{Z}, (\mathbb{D}), \mathbb{Q}, \mathbb{R}$

g) $\sqrt[3]{144} = 5,241\dots$ Rép: \mathbb{Q}' et \mathbb{R}

h) $\sqrt{-3}$ Rép: Aucun de ces ensemble de nombres

★ Nous n'avons pas vu l'ensemble des nombres décimaux (\mathbb{D}) . Vous pouvez répondre à la question sans tenir compte de cet ensemble.

#13

a) Faux

b) Faux

c) Vrai

d) Faux

e) Vrai

f) Faux

$$6,3 \text{ Mg} = 6,3 \times 10^6 \text{ g (et non kg)}$$

$$3^{-2} = \frac{1}{3^2} = \frac{1}{9} \quad \left(\frac{1}{9} \text{ appartient à } \mathbb{Q}, \text{ et } \mathbb{R}\right)$$

$$\sqrt{6^{10}} = (6^{10})^{\frac{1}{2}} = 6^{\frac{10}{2}} = 6^5 = 7776$$

$$2,45 \text{ picometre} = 2,45 \times 10^{-12} \text{ m}$$

$$\frac{10^3}{5^3} = \left(\frac{10}{5}\right)^3 = 2^3$$

$$2^5 \cdot 2^7 = 2^{5+7} = 2^{12}$$

$$\text{Aussi } \underbrace{(2 \cdot 2 \cdot 2 \cdot 2 \cdot 2)}_{2^5} \cdot \underbrace{(2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2)}_{2^7} = 2^{12}$$

#14

$$a) \frac{2^2 \cdot 2^3}{2^6} = \frac{2^5}{2^6} = 2^{-1} = \boxed{\frac{1}{2}}$$

$$b) (3^5 \cdot 3^6)^2 = (3^{11})^2 = 3^{11} \cdot 3^{11} = \boxed{3^{22}}$$

$$c) \left(\frac{15^{10}}{5^{10}} \right)^3 = \left(\left(\frac{15}{5} \right)^{10} \right)^3 = (2^{10})^3 = 2^{10} \cdot 2^{10} \cdot 2^{10} = \boxed{2^{30}}$$

$$d) \sqrt{\frac{7^2}{7^6}} = \sqrt{7^{-4}} = (7^{-4})^{1/2} = 7^{-2} = \boxed{\frac{1}{7^2}}$$

$$e) (12\ 569\ 065^2)^0 = \boxed{1}$$

$$f) \sqrt[3]{5 \cdot 5^4 \div 5^8} = \sqrt[3]{5^{1+4-8}} = \sqrt[3]{5^{-3}} = (5^{-3})^{1/3} = 5^{-1} = \boxed{\frac{1}{5}}$$

$$g) \frac{10^4 \cdot 10^6 \cdot 10 \cdot 10}{10^3} = \frac{10^{11} \cdot 10^1}{10^3} = 10^8 \cdot 10^1 = \boxed{10^9}$$

$$h) \frac{2}{5} \cdot \frac{5^3 \cdot 5^2}{2} = \frac{5^5}{5} = \boxed{5^4}$$

$$i) \sqrt{6^{16}} \cdot \sqrt[3]{6^{15}} = (6^{16})^{1/2} \cdot (6^{15})^{1/3} = 6^{8} \cdot 6^{5} = 6^{13} = \boxed{6^{13}}$$

$$j) \left(\frac{4^7}{4^9} \cdot \frac{4^1}{4^3} \right)^3 = (4^{-2} \cdot 4^{-2})^3 = (4^{-2+(-2)})^3 = (4^{-4})^3 = 4^{-12} = \boxed{\frac{1}{4^{12}}}$$

$$k) \left(\frac{5^1 \cdot 3^2 \cdot 5^4}{3 \cdot 5^6} \right)^{-2} = \left(\frac{5^5 \cdot 3^2}{5^6 \cdot 3} \right)^{-2} = \left(5^{-1} \cdot 3^1 \right)^{-2} = 5^2 \cdot 3^{-2} = \boxed{\frac{5^2}{3^2}}$$

$$l) \frac{36^{11}}{18^{11}} \cdot \frac{22^9}{11^9} = \left(\frac{36}{18} \right)^{11} \cdot \left(\frac{22}{11} \right)^9 = 2^{11} \cdot 2^9 = \boxed{2^{20}}$$