

Solutions du devoir : Pythagore et racines carrées

4 page 37

$$a) \sqrt{16} = 4$$

$$\sqrt{9} = 3$$

$$\sqrt{1} = 1$$

$$\sqrt{0} = 0$$

$$b) \sqrt{\frac{1}{4}} = \frac{1}{2}$$

$$\sqrt{\frac{9}{100}} = \frac{3}{10}$$

$$\sqrt{\frac{4}{25}} = \frac{2}{5}$$

$$\sqrt{\frac{16}{25}} = \frac{4}{5}$$

$$c) \sqrt{0,25} = 0,5$$

$$\sqrt{0,0009} = 0,03$$

$$\sqrt{1,21} = 1,1$$

$$\sqrt{6,25} = 2,5$$

3 page 38

Par le théorème de Pythagore car le triangle ABC est rectangle en A, on a :

$$b) \quad 3) \quad |BC|^2 = |AB|^2 + |AC|^2$$

$$c) \quad 1) \quad |BC|^2 = |AB|^2 + |AC|^2 \quad d) \quad 2) \quad |BC|^2 = |AB|^2 + |AC|^2$$

$$0,05^2 = 0,03^2 + |AC|^2$$

$$|BC|^2 = \left(\frac{1}{3}\right)^2 + \left(\frac{1}{2}\right)^2$$

$$|BC|^2 = \sqrt{2^2 + 1^2}$$

$$0,0025 = 0,0009 + |AC|^2$$

$$|BC|^2 = \frac{1}{9} + \frac{1}{4}$$

$$|BC|^2 = 2 + 1$$

$$0,0025 - 0,0009 = |AC|^2$$

$$|BC|^2 = \frac{4 + 9}{36}$$

$$|BC|^2 = 3$$

$$0,0016 = |AC|^2$$

$$|BC|^2 = \frac{13}{36}$$

$$|BC| = \sqrt{3} \cong 1,73$$

$$0,04 = |AC|$$

$$\text{Réponse } |AC| = 0,04 \text{ m}$$

$$|BC| = \sqrt{\frac{13}{36}} \cong 0,60$$

$$\text{Réponse } |BC| \cong 1,73 \text{ m}$$

$$\left(|BC| = \frac{\sqrt{13}}{6} \right)$$

$$\text{Réponse } |BC| \cong 0,60 \text{ m}$$

3 b) page 39

$$b) \quad \sqrt{72} = \sqrt{36 \cdot 2} = \sqrt{36} \cdot \sqrt{2} = 6\sqrt{2}$$

$$\sqrt{48} = \sqrt{16 \cdot 3} = \sqrt{16} \cdot \sqrt{3} = 4\sqrt{3}$$

$$\sqrt{225} = 15$$

$$\sqrt{128} = \sqrt{64 \cdot 2} = \sqrt{64} \cdot \sqrt{2} = 8\sqrt{2}$$

$$\sqrt{144} = 12$$

$$\sqrt{60} = \sqrt{4 \cdot 15} = \sqrt{4} \cdot \sqrt{15} = 2\sqrt{15}$$

$$b) \sqrt{2^6 \cdot 3^5} = \sqrt{2^6 \cdot 3^4 \cdot 3} = 2^3 \cdot 3^2 \sqrt{3} = 8 \cdot 9 \cdot \sqrt{3} = 72\sqrt{3}$$

$$\sqrt{3^7 \cdot 5^6} = \sqrt{3^6 \cdot 3 \cdot 5^6} = 3^3 \cdot 5^3 \cdot \sqrt{3} = 27 \cdot 125 \cdot \sqrt{3} = 3375\sqrt{3}$$

$$\sqrt{3^2 \cdot 5^{11}} = \sqrt{3^2 \cdot 5^{10} \cdot 5} = 3 \cdot 5^5 \cdot \sqrt{5} = 3 \cdot 3125 \cdot \sqrt{5} = 9375\sqrt{5}$$

$$\sqrt{5^7 \cdot 7^5} = \sqrt{5^6 \cdot 5 \cdot 7^4 \cdot 7} = 5^3 \cdot 7^2 \cdot \sqrt{5 \cdot 7} = 125 \cdot 49 \cdot \sqrt{5 \cdot 7} = 6125\sqrt{35}$$

$$\sqrt{2 \cdot 3^8 \cdot 5^2} = 3^4 \cdot 5 \cdot \sqrt{2} = 81 \cdot 5 \cdot \sqrt{2} = 405\sqrt{2}$$

$$\sqrt{2^6 \cdot 3 \cdot 7^3} = \sqrt{2^6 \cdot 3 \cdot 7^2 \cdot 7} = 2^3 \cdot 7 \cdot \sqrt{3 \cdot 7} = 8 \cdot 7 \cdot \sqrt{3 \cdot 7} = 56\sqrt{21}$$

$$b) 432 = 2^4 \cdot 3^3 \Rightarrow \sqrt{432} = \sqrt{2^4 \cdot 3^2 \cdot 3} = 2^2 \cdot 3 \cdot \sqrt{3} = 4 \cdot 3 \cdot \sqrt{3} = 12\sqrt{3}$$

$$1296 = 2^4 \cdot 3^4 \Rightarrow \sqrt{1296} = \sqrt{2^4 \cdot 3^4} = 2^2 \cdot 3^2 = 4 \cdot 9 = 36$$

$$5000 = 2^3 \cdot 5^4 \Rightarrow \sqrt{5000} = \sqrt{2^3 \cdot 5^4} = \sqrt{2^2 \cdot 2 \cdot 5^4} = 2 \cdot 5^2 \cdot \sqrt{2} = 2 \cdot 25 \cdot \sqrt{2} = 50\sqrt{2}$$

$$5184 = 2^6 \cdot 3^4 \Rightarrow \sqrt{5184} = \sqrt{2^6 \cdot 3^4} = 2^3 \cdot 3^2 = 8 \cdot 9 = 72$$

$$6125 = 5^3 \cdot 7^2 \Rightarrow \sqrt{6125} = \sqrt{5^3 \cdot 7^2} = \sqrt{5^2 \cdot 5 \cdot 7^2} = 5 \cdot 7 \cdot \sqrt{5} = 35\sqrt{5}$$