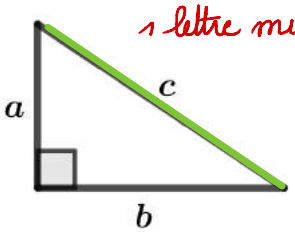
Athénée royal Uccle — Enseignement secondaire

MATHEMATIQUE
Devoir n°....
5
Ch 1 : Pythagore

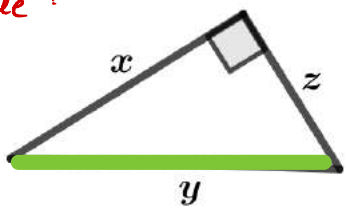
Nom : ..... N°
Prénom : .....
Classe : 3A Date : .....

1) **DETERMINE** la relation de Pythagore pour les triangles ci-dessous. (Langage symbolique)

1 lettre minuscule !

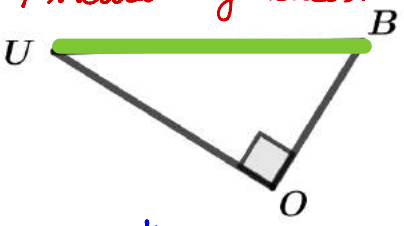


$c^2 = a^2 + b^2$

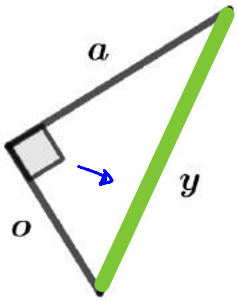


$y^2 = x^2 + z^2$

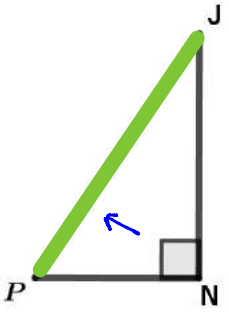
1 ou 2 lettres majuscules / Sommets



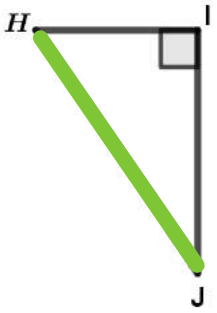
$|UB|^2 = |UO|^2 + |OB|^2$



$y^2 = o^2 + a^2$

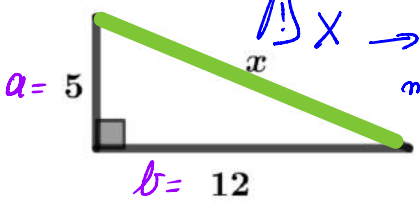


$|JP|^2 = |JN|^2 + |NP|^2$



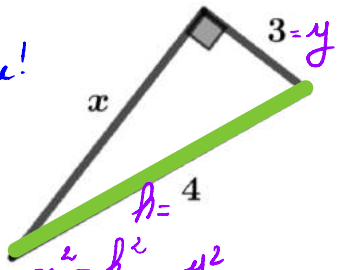
$|HJ|^2 = |HI|^2 + |IJ|^2$

2) **DETERMINE** la longueur du côté du triangle (3 étapes) (Formule / Remplacer / calculer)

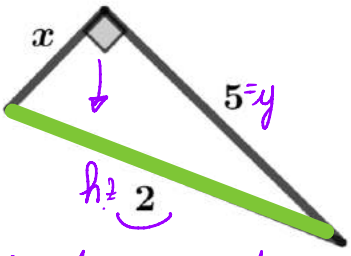


⚠ X → x minuscule !

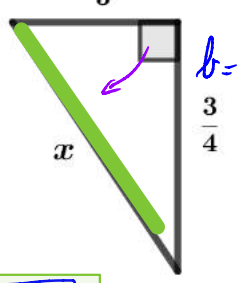
$x^2 = a^2 + b^2$
$x^2 = 5^2 + 12^2$
$x^2 = 25 + 144$
$x^2 = 169$
$x = 13$



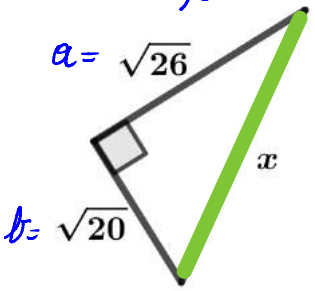
$x^2 = h^2 - y^2$
$x^2 = 4^2 - 3^2$
$x^2 = 16 - 9$
$x^2 = 7$
$x = \sqrt{7}$ Valeur exacte
$x \cong 2,65$ Valeur arrondie



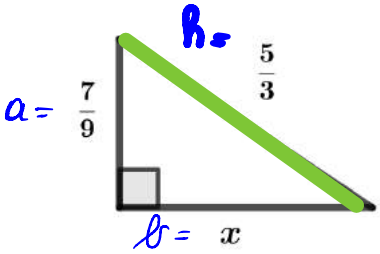
hypoténuse serait plus petite qu'une cathète
IMPOSSIBLE



$x = \frac{\sqrt{97}}{12}$ $x \cong 0,82$

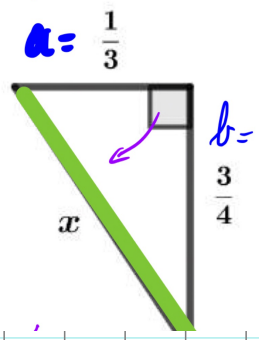


$x = \sqrt{46}$
$x \cong 6,78$



$x = \frac{4\sqrt{11}}{9}$
$x \cong 1,47$

VERSO



$x^2 = a^2 + b^2$ Formule

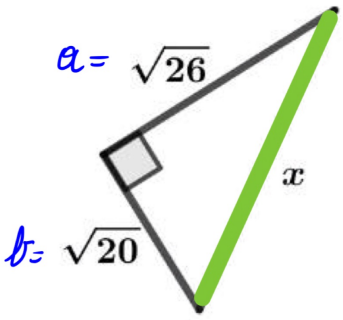
$x^2 = \left(\frac{1}{3}\right)^2 + \left(\frac{3}{4}\right)^2$ Remplacer

$x^2 = \frac{1 \cdot 16}{9 \cdot 16} + \frac{9 \cdot 9}{16 \cdot 9}$ 9 et 16 sont premiers entre eux

$x^2 = \frac{16+81}{144}$ Calculer

$x^2 = \frac{97}{144}$

Valeur exacte : $x = \frac{\sqrt{97}}{12}$ $\quad x \simeq 0,82$ Valeur arrondie à x



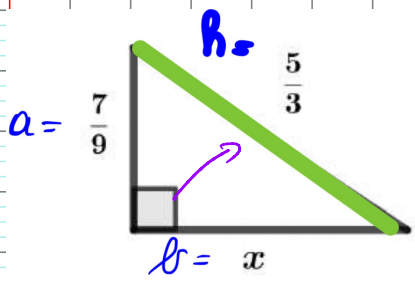
$x^2 = a^2 + b^2$ Formule

$x^2 = \left(\sqrt{26}\right)^2 + \left(\sqrt{20}\right)^2$ Remplacer

$x^2 = 26 + 20$ Calculer

$x^2 = 46$

Valeur exacte : $x = \sqrt{46}$ $\quad x \simeq 6,78$



$x^2 = h^2 - a^2$ Formule

$x^2 = \left(\frac{5}{3}\right)^2 - \left(\frac{7}{9}\right)^2$ Remplacer

$x^2 = \frac{25 \cdot 3}{9 \cdot 9} - \frac{49}{81}$ Calculer

$x^2 = \frac{225 - 49}{81}$

$x^2 = \frac{176}{81}$

$x^2 = \frac{16 \times 11}{81}$

Valeur exacte : $x = \frac{4\sqrt{11}}{9}$ $\quad x \simeq 1,47$