Nom : .... N°:

Prénom : ....

Mathématique Devoir n° ……

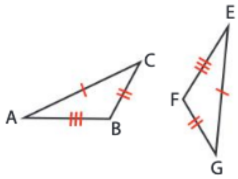
Classe : 3A Date : ....

Triangles isométriques – Triangles semblables

5

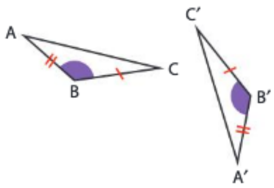
Un peu de théorie

Triangles isométriques et conditions minimales



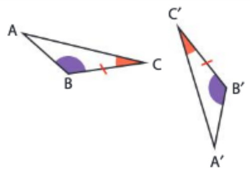
$|AC| = |EG|$
$|BC| = |FG|$
$|AB| = |EF|$

Δ ABC iso Δ EFG



$|AB| = |A'B'|$
$|\hat{B}| = |\widehat{B'}|$
$|BC| = |B'C4|$

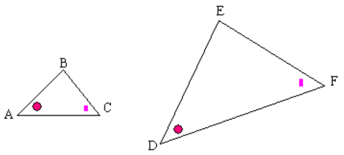
Δ ABC iso Δ A'B'C'



$|\hat{B}| = |\widehat{B'}|$
$|BC| = |B'C'|$
$|\hat{C}| = |\widehat{C'}|$

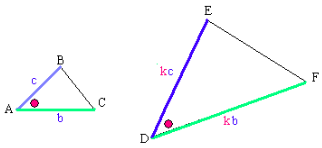
Δ ABC iso Δ A'B'C'

Triangles Semblables et conditions minimales



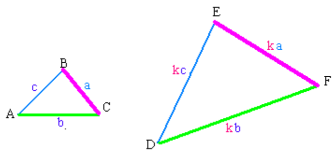
⊗ $|\hat{A}| = |\hat{D}|$
⊗ $|\hat{C}| = |\hat{F}|$

Δ ABC ~ Δ DEF



⊗ $|\hat{A}| = |\hat{D}|$
⊗ $\frac{|AB|}{|DE|} = \frac{|AC|}{|DF|} = k$

Δ ABC ~ Δ DEF

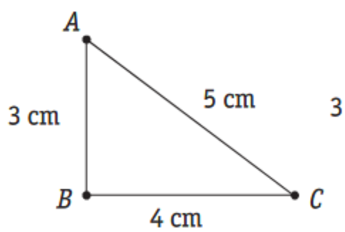


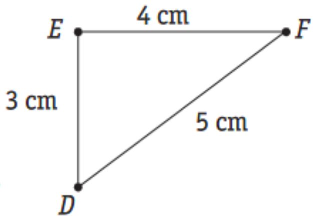
⊗ $\frac{|AB|}{|DE|} = \frac{|AC|}{|DF|} = \frac{|BC|}{|EF|} = k$

Δ ABC ~ Δ DEF

Exercice résolu

DÉTERMINE si les triangles *ABC* et *DEF* sont isométriques.
JUSTIFIE





ΔABC iso ΔDEF car

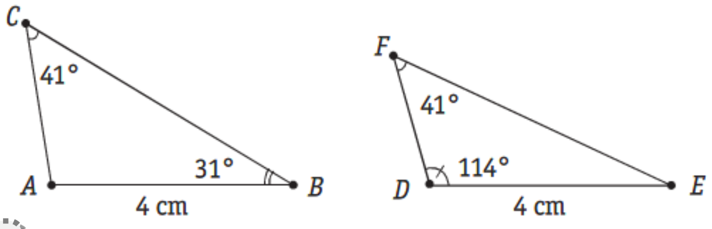
C	|AB|	= |DE|
C	|AC|	= |DF|
C	|BC|	= |EF|

Ils ont respectivement trois côtés de même longueur**ΔABC iso ΔDEF**

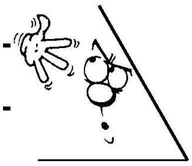
1

DÉTERMINE si les triangles *ABC* et *DEF* sont isométriques.
JUSTIFIE.

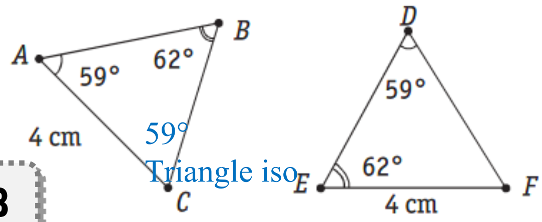
Situation 2



/3



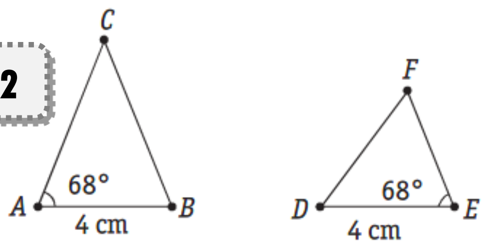
Situation 3



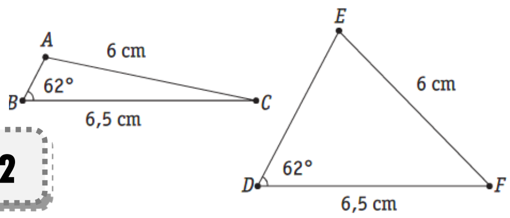
/3

Situation 4

/2



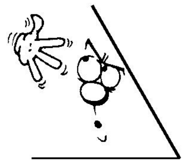
Situation 5

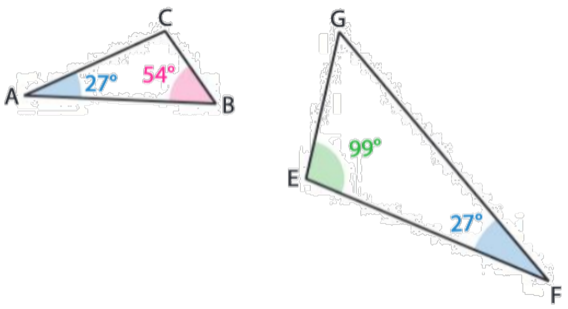


/2

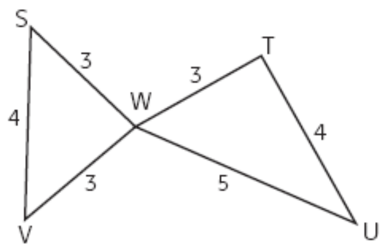
2

DÉTERMINE si les paires de triangles ci-dessous sont semblables.
JUSTIFIE.

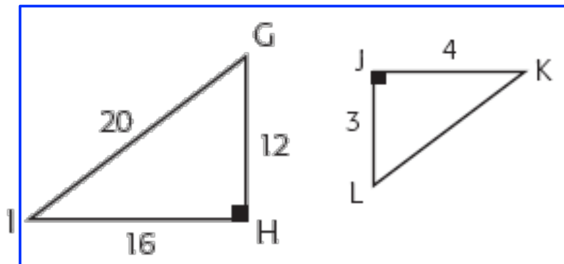




/3

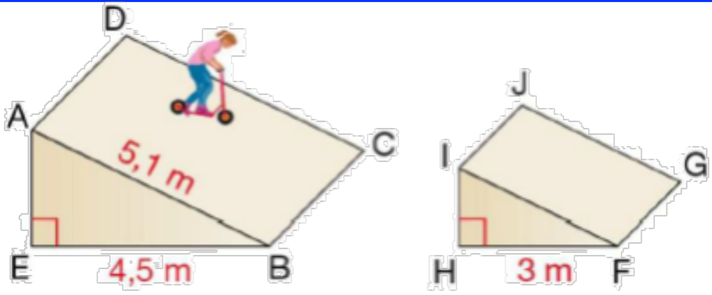


/3



/3

3 Histoire de problèmes



Les triangles *ABE* et *IHF* de ces deux rampes sont semblables.

a) **CALCULE** la hauteur $|AE|$.

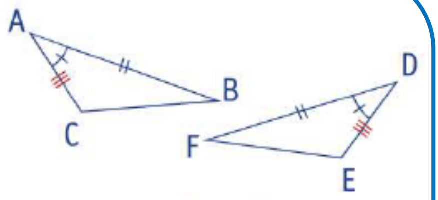
b) **CALCULE** les longueurs $|IH|$ et $|IF|$.

ÉCRIS-ton raisonnement et tous tes calculs.

/6

Bon travail !

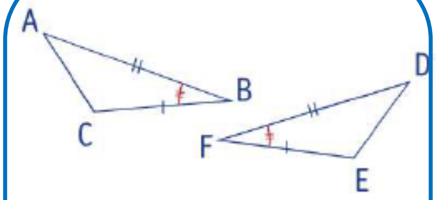
1 **DÉTERMINE** la ou les mesures manquantes pour justifier que les triangles ci-dessous sont isométrique.



$|\hat{A}| = |\hat{D}|$

$|AB| = |DF|$

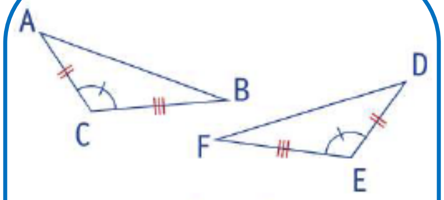
| | = | |



$|AB| = |DF|$

$|BC| = |FE|$

| | = | |



$|\hat{C}| = |\hat{E}|$

| | = | |

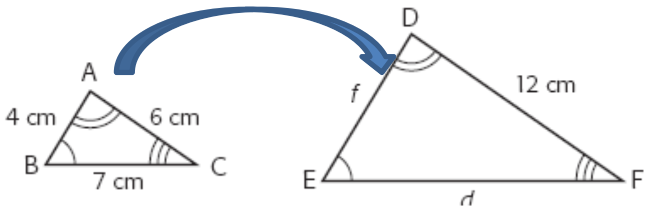
| | = | |

/4

2 Pour chacune des paires de triangles ci-dessous :

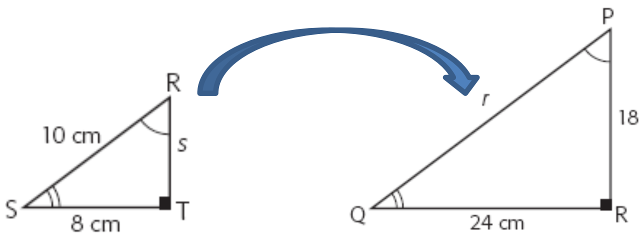
1) **DÉTERMINE** le rapport de similitude ;
2) **DÉTERMINE** la ou les mesures manquantes.

a)



/3

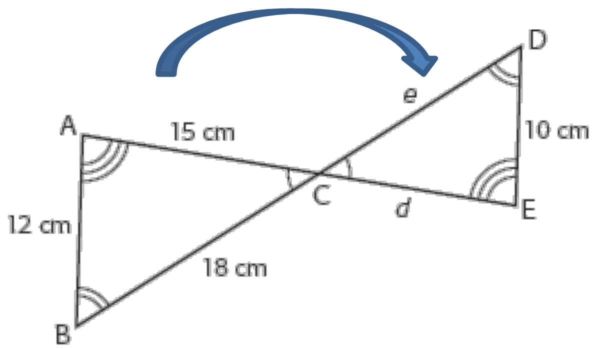
b)



/3

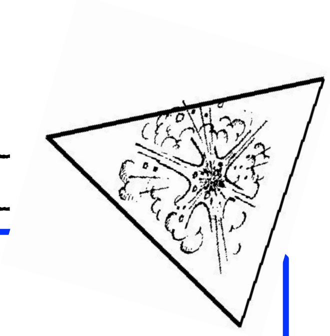
c)

/3



3 Histoire de problèmes

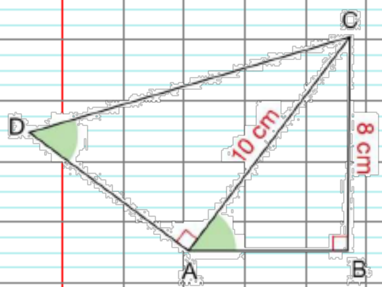
ÉCRIS–TON RAISONNEMENT ET TOUS TES CALCULS



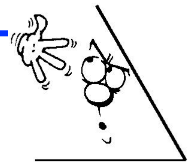
A

ABC et *DAC* sont deux triangles rectangles.

DÉTERMINE $|AD|$ et $|AC|$.



/4

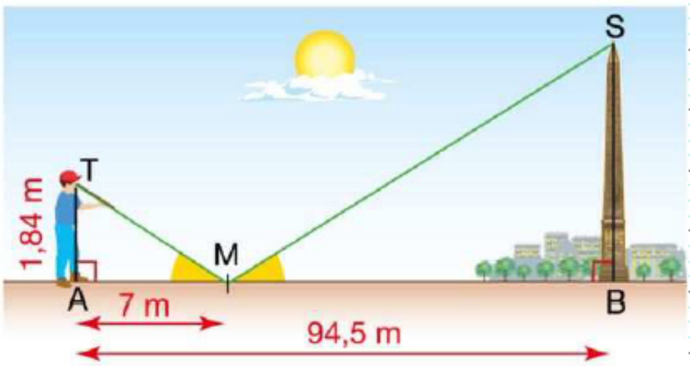


B

Pour estimer la hauteur de l'obélisque de la place de la Concorde à Paris, un touriste mesurant 1.84 m regarde dans un miroir (M) dans lequel il arrive à voir le sommet de l'obélisque.

Les angles $\widehat{AMT}$ et $\widehat{BMS}$ ont la même mesure.

CALCULE la hauteur de l'obélisque.



/4

Bon travail