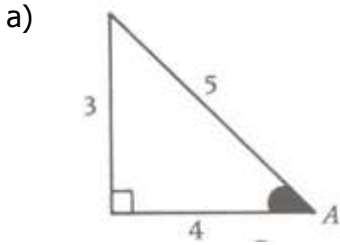


Exercice feuillet 4

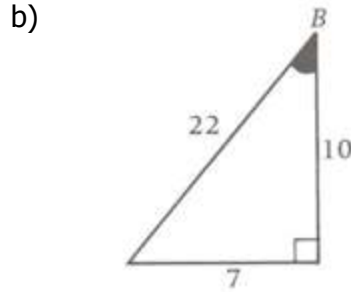
1. Trouve le sinus, le cosinus et la tangente de chacun des angles identifiés.



$$\sin A = \frac{3}{5}$$

$$\cos A = \frac{4}{5}$$

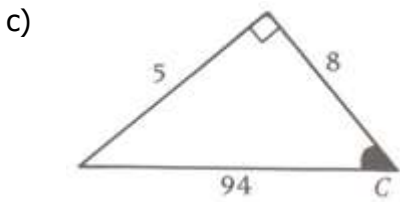
$$\tan A = \frac{3}{4}$$



$$\sin B = \frac{7}{22}$$

$$\cos B = \frac{10}{22}$$

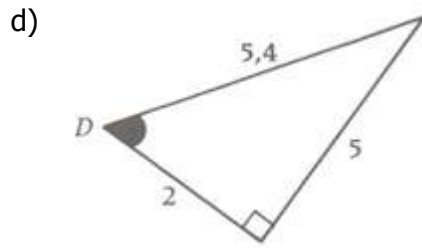
$$\tan B = \frac{7}{10}$$



$$\sin C = \frac{5}{94}$$

$$\cos C = \frac{8}{94}$$

$$\tan C = \frac{5}{8}$$



$$\sin D = \frac{5}{5,4}$$

$$\cos D = \frac{2}{5,4}$$

$$\tan D = \frac{5}{2}$$

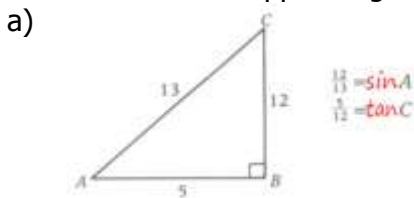
2. Utilise la table de la page 459 pour trouver les valeurs demandées. (calculatrice)

- a) $\sin 42^\circ$ b) $\cos 53^\circ$ c) $\tan 22^\circ$ d) $\cos 24^\circ$ e) $\sin 75^\circ$ f) $\tan 60^\circ$
 0,6691 0,6018 0,4040 0,9135 0,9659 1,7321

3. Utilise la table de la page 459 pour déterminer la valeur de l'angle A.

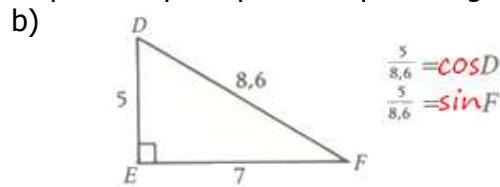
- a) $\sin A = 0,208$ b) $\cos A = 0,899$ c) $\tan A = 1,376$ d) $\cos A = 0,276$ e) $\sin A = 0,857$ f) $\tan A = 0,105$
 12° 26° 54° 74° 59° 6°

4. Trouve le rapport trigonométrique manquant pour chaque triangle.



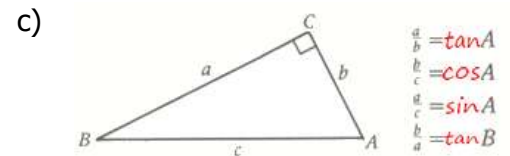
$$\frac{12}{13} = \sin A$$

$$\frac{5}{12} = \tan C$$



$$\frac{5}{8,6} = \cos D$$

$$\frac{7}{8,6} = \sin F$$



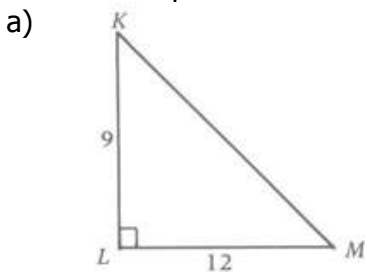
$$\frac{a}{b} = \tan A$$

$$\frac{b}{c} = \cos A$$

$$\frac{a}{c} = \sin A$$

$$\frac{b}{a} = \tan B$$

5. Calcule la longueur de l'hypoténuse dans chaque cas, trouve ensuite les trois rapports trigonométriques de base pour les deux angles aigus de chaque triangle.



$$l^2 = m^2 + k^2$$

$$l^2 = 9^2 + 12^2$$

$$l^2 = 81 + 144$$

$$l^2 = 225$$

$$l = 15$$

$$\sin K = \frac{12}{15}$$

$$\cos K = \frac{9}{15}$$

$$\tan K = \frac{12}{9}$$

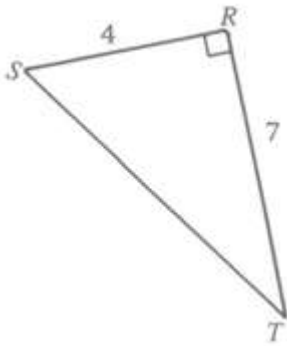
$$\sin M = \frac{9}{15}$$

$$\cos M = \frac{12}{15}$$

$$\tan M = \frac{9}{12}$$

Exercice feuillet 4

b)



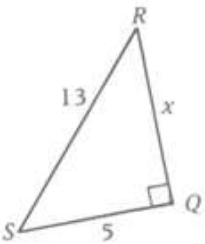
$$\begin{aligned} r^2 &= s^2 + t^2 \\ r^2 &= 7^2 + 4^2 \\ r^2 &= 49 + 16 \\ r^2 &= 65 \\ r &= \sqrt{65} \end{aligned}$$

$$\begin{aligned} \sin S &= \frac{7}{\sqrt{65}} \\ \cos S &= \frac{4}{\sqrt{65}} \\ \tan S &= \frac{7}{4} \end{aligned}$$

$$\begin{aligned} \sin T &= \frac{4}{\sqrt{65}} \\ \cos T &= \frac{7}{\sqrt{65}} \\ \tan T &= \frac{4}{7} \end{aligned}$$

6. Calcule la longueur de x dans chacun des cas, trouve ensuite les trois rapports trigonométriques de base pour les deux angles aigus de chaque triangle.

a)

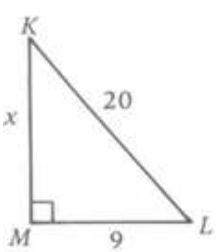


$$\begin{aligned} q^2 &= r^2 + s^2 \\ 13^2 &= 5^2 + s^2 \\ 169 - 25 &= s^2 \\ 144 &= s^2 \\ s &= 12 \end{aligned}$$

$$\begin{aligned} \sin S &= \frac{12}{13} \\ \cos S &= \frac{5}{13} \\ \tan S &= \frac{12}{5} \end{aligned}$$

$$\begin{aligned} \sin R &= \frac{5}{13} \\ \cos R &= \frac{12}{13} \\ \tan R &= \frac{5}{12} \end{aligned}$$

b)

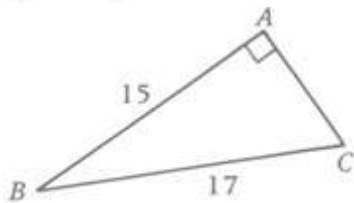


$$\begin{aligned} 20^2 &= 9^2 + x^2 \\ 400 - 81 &= x^2 \\ 319 &= x^2 \\ x &= \sqrt{319} = 17,9 \end{aligned}$$

$$\begin{aligned} \sin L &= \frac{17,9}{20} \\ \cos L &= \frac{9}{20} \\ \tan L &= \frac{17,9}{9} \end{aligned}$$

$$\begin{aligned} \sin K &= \frac{9}{20} \\ \cos K &= \frac{17,9}{20} \\ \tan K &= \frac{9}{17,9} \end{aligned}$$

c)

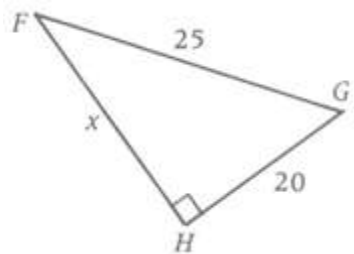


$$\begin{aligned} 17^2 &= 15^2 + b^2 \\ 289 - 225 &= b^2 \\ 64 &= b^2 \\ b &= 8 \end{aligned}$$

$$\begin{aligned} \sin B &= \frac{8}{17} \\ \cos B &= \frac{15}{17} \\ \tan B &= \frac{8}{15} \end{aligned}$$

$$\begin{aligned} \sin C &= \frac{15}{17} \\ \cos C &= \frac{8}{17} \\ \tan C &= \frac{15}{8} \end{aligned}$$

d)



$$\begin{aligned} 25^2 &= 20^2 + x^2 \\ 625 - 400 &= x^2 \\ 225 &= x^2 \\ x &= 15 \end{aligned}$$

$$\begin{aligned} \sin F &= \frac{20}{25} = \frac{4}{5} \\ \cos F &= \frac{15}{25} = \frac{3}{5} \\ \tan F &= \frac{20}{15} = \frac{4}{3} \end{aligned}$$

$$\begin{aligned} \sin G &= \frac{15}{25} = \frac{3}{5} \\ \cos G &= \frac{20}{25} = \frac{4}{5} \\ \tan G &= \frac{15}{20} = \frac{3}{4} \end{aligned}$$

7. Calcule y au dixième près dans chacun des cas suivants.

a) $\frac{y}{15} = \cos 30^\circ$
 $y = 15 \times 0,866$
 $y = 13$

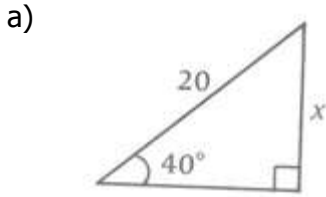
b) $\frac{y}{12} = \cos 70^\circ$
 $y = 12 \times 0,3420$
 $y = 4,1$

c) $\frac{y}{20} = \sin 65^\circ$
 $y = 20 \times 0,9063$
 $y = 18,1$

d) $\frac{y}{23} = \sin 22^\circ$
 $y = 23 \times 0,3746$
 $y = 8,6$

Exercice feuillet 4

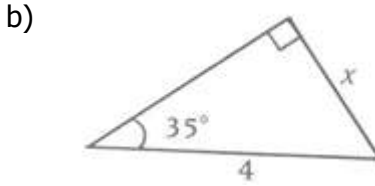
8. Utilise le rapport sinus pour calculer la valeur de x dans chacun des cas suivants.



$$\sin 40^\circ = \frac{x}{20}$$

$$x = 20 \times 0,6428$$

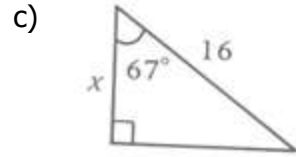
$$x = 12,9$$



$$\sin 35^\circ = \frac{x}{4}$$

$$x = 4 \times 0,5736$$

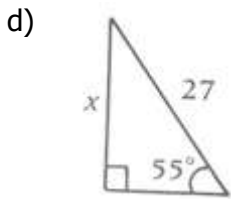
$$x = 2,3$$



$$\sin 23^\circ = \frac{x}{16}$$

$$x = 16 \times 0,3907$$

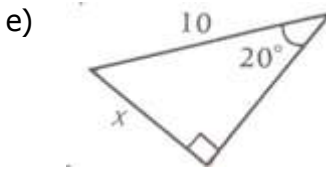
$$x = 6,3$$



$$\sin 55^\circ = \frac{x}{27}$$

$$x = 27 \times 0,8192$$

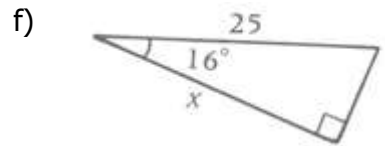
$$x = 22,1$$



$$\sin 20^\circ = \frac{x}{10}$$

$$x = 10 \times 0,3420$$

$$x = 3,4$$

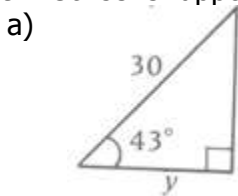


$$\sin 74^\circ = \frac{x}{25}$$

$$x = 25 \times 0,9613$$

$$x = 24,0$$

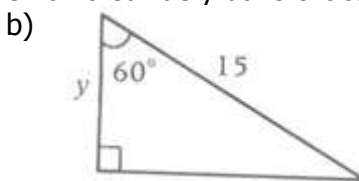
9. Utilise le rapport cosinus pour calculer la valeur de y dans chacun des cas suivants.



$$\cos 43^\circ = \frac{y}{30}$$

$$y = 30 \times 0,7314$$

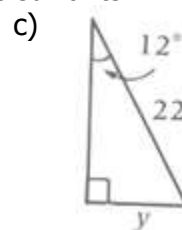
$$y = 21,9$$



$$\cos 60^\circ = \frac{y}{15}$$

$$y = 15 \times 0,5$$

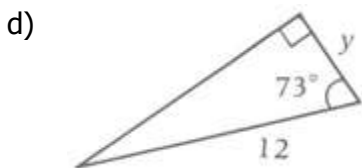
$$y = 7,5$$



$$\cos 78^\circ = \frac{y}{22}$$

$$y = 22 \times 0,2079$$

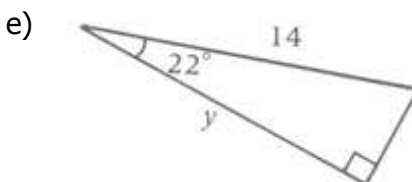
$$y = 4,6$$



$$\cos 73^\circ = \frac{y}{12}$$

$$y = 12 \times 0,2924$$

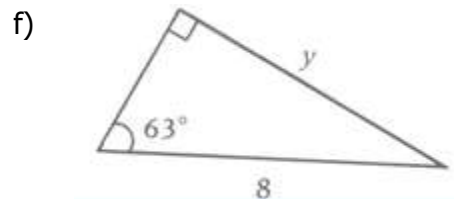
$$y = 3,5$$



$$\cos 22^\circ = \frac{y}{14}$$

$$y = 14 \times 0,9272$$

$$y = 13$$



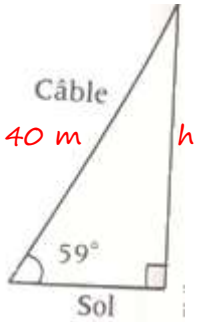
$$\cos 27^\circ = \frac{y}{8}$$

$$y = 8 \times 0,8910$$

$$y = 7,1$$

Exercice feuillet 4

10. Un câble de soutien de 40 m de longueur relie le haut d'une tour au sol. Le câble forme un angle de 59° avec le sol. Calcule la hauteur de la tour.

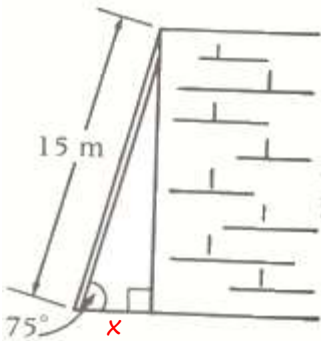


$$\sin 59^\circ = \frac{h}{40}$$

$$h = 40 \times 0,8572 \quad \text{La hauteur de la tour est de } 34,3 \text{ m.}$$

$$h = 34,3$$

11. À quelle distance du mur le pied d'une échelle de 15 m doit-il être placé afin de former un angle de 75° avec le sol?



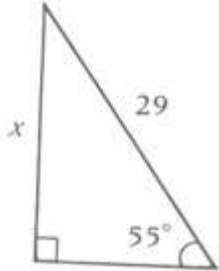
$$\cos 75^\circ = \frac{x}{15}$$

$$x = 15 \times 0,2588 \quad \text{L'échelle devrait être à } 3,9 \text{ m du mur.}$$

$$x = 3,9$$

12. Utilise un rapport trigonométrique pour déterminer la valeur de x dans chacun des cas suivants.

a)

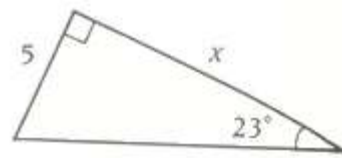


$$\sin 55^\circ = \frac{x}{29}$$

$$x = 29 \times 0,8192$$

$$x = 23,8$$

b)



$$\tan 23^\circ = \frac{5}{x}$$

$$x \times 0,4245 = 5$$

$$x = \frac{5}{0,4245} = 11,8$$