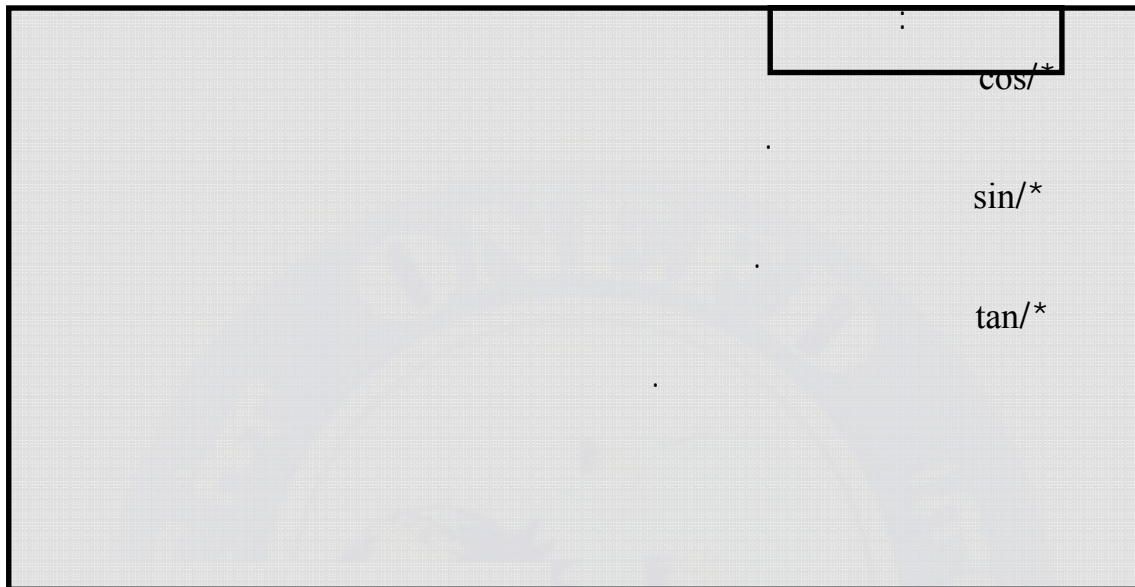


()

$$S = 6\sqrt{2} + 9 : \tan x =$$

- .1
- .2
- .3
- .4
- .5

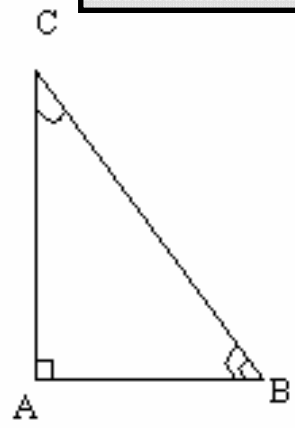
.1 cos- sin - tan () .



cos/*

sin/*

tan/*



: A ABC

$$\cos \hat{B} = \frac{AB}{BC} \quad \sin \hat{B} = \frac{AC}{BC} \quad \tan \hat{B} = \frac{AC}{AB}$$

.1 0

:
sin cos
tan

:1 .2

(O,I,J)

O (C)

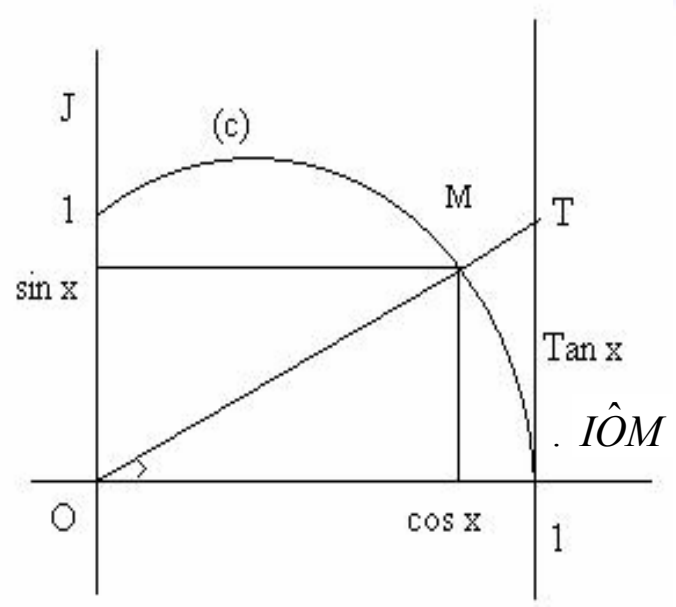
.1

.I (C) (IT)

: *

X (C) M

جميع الحقوق محفوظة ©



$$\begin{array}{l} \text{(IT) (OM)} \quad \text{M} \quad \text{tan}x^* \\ \text{.}(\cos x, \sin x) \quad \text{T} \quad \text{IT} \quad \text{tan}x^* \\ \text{:} \end{array} \quad \text{.3}$$

$$\text{(sin.tan.cos)} \quad *$$

$$\begin{array}{l} \text{tan } 82^\circ \quad 7 \sin 68^\circ \quad \frac{1}{100} \quad \text{:1} \\ 68^\circ \sin x \quad 7 = 6.490286982 \end{array}$$

$$7 \sin 68^\circ \approx 6.49$$

$$\text{tan}82^\circ = \dots\dots\dots / *$$

$$\text{tan } 82^\circ = \dots\dots\dots$$

$$\text{:} \quad \text{.4}$$

$$\begin{array}{l} * \tan x = \frac{\sin x}{\cos x} \quad \text{:} \\ * \cos^2 x + \sin^2 x = 1 \end{array}$$

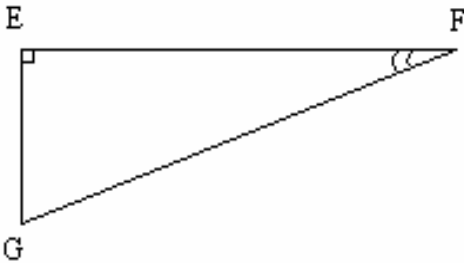
تمارين محلولة

:1

$$FG=7.5m \quad \hat{F} = 59^\circ \quad \text{E} \quad \text{EFG}$$

$$\sin 59^\circ = \frac{GE}{7.5} \quad *$$

E EFG :



$$GE = 7.5 \sin 59^\circ, \sin 59^\circ = \frac{GE}{7.5}$$

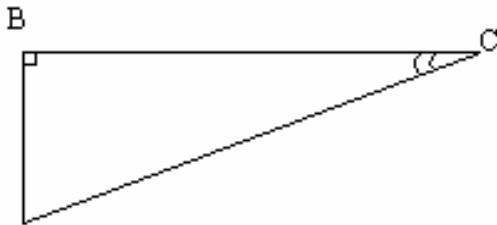
$$GE \approx 6.4 \text{ cm}$$

:2

B BCD

$$\hat{C} = 50^\circ, BD = 7 :$$

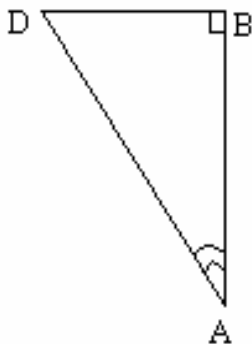
$$\sin 50^\circ = \frac{BD}{CD} \quad *$$



B BCD

$$DC = \frac{7}{\sin 50^\circ}, \sin 50^\circ = \frac{7}{DC}$$

$$DC = 9.1 \text{ cm}$$



:3

B ABD

$$\hat{A} = 40^\circ, AB = 9 :$$

$$\sin B = \frac{1}{10}$$

في المثلث ABD :

$$BD = 9 \cdot \tan 40^\circ, \tan 40^\circ = \frac{BD}{9}$$

$$BD = 7.6 \text{ cm}$$

4:

في المثلث ABC

$$AB = 2.6 \text{ m}, BC = 4 \text{ m} :$$

$$\sin \hat{C} = \frac{1}{10} \quad (*)$$

في المثلث ABC

$$\sin \hat{C} = \frac{2.6}{4}, \sin \hat{C} = 0.65$$

$$\hat{C} \approx 40.5^\circ$$





. P MNP /1

:

$$\frac{PM}{MN} = \cos \dots / * \quad \frac{PN}{MN} = \cos \dots = \sin \dots / *$$

$$\frac{PM}{PN} = \dots / * \quad \frac{PN}{PM} = \dots / *$$

.R RST /2

.Tan , Sin , Cos

\hat{S} ... RT , RS /*

\hat{T}

. \hat{T} \hat{S} ... RT RS /*

. \hat{T} \hat{S} ... RT ST /*

: $\frac{1}{1000}$ /3

Tan 45°, Sin 40°, Cos 35°
Tan 90°, Cos 50°, Sin 65°

. \hat{A} /4

$$\text{Tan } \hat{A} = \frac{5}{3} / * \quad \text{Sin } \hat{A} = \sqrt{0.9} / * \quad \text{Cos } \hat{A} = \frac{1}{3} / *$$

MP = 6.3 cm $\hat{N} = 72^\circ$: M MNP/5

$\frac{1}{100}$ NP

BC = 5.3 cm $\hat{B} = 68^\circ$: A ABC/6

$\frac{1}{100}$ AC

$$UN = 4.5\text{cm} \quad \hat{N} = 20^\circ: \quad U \quad \text{UNE} /7$$

$$\cdot \frac{1}{100} \quad \text{EU}$$

$$BC = 11.5\text{cm}, AC = 7.8\text{cm} : \quad A \quad \text{ABC} /8$$

$$\hat{B} \quad \frac{1}{10}$$

$$RS = 7.5\text{cm}, RT = 4.7\text{cm} : \quad T \quad \text{RST} /9$$

$$\cdot \frac{1}{100} \quad \hat{R}$$

$$EF = 5\text{cm}, EG = 3.5\text{cm} : \quad E \quad \text{EFG} /10$$

$$\cdot \frac{1}{10} \quad \hat{G}$$

$$: \quad [BC] \quad [HA] \quad \text{ABC} /11$$

$$AH = 4.9\text{cm}, BH = 1.4\text{cm}, CH = 2\text{cm}$$

$$\cdot \frac{1}{10}$$

$$\text{Cos}^2 x + \text{Sin}^2 x = 1 : \quad \text{Cos} = \frac{3}{5} : \quad /12$$

$$\cdot \text{Tan} x \quad \text{Sin} x \quad -$$

$$\text{Sin} = \frac{8}{17} : \quad /13$$

$$\cdot \text{Tan} x \quad \text{Cos} x \quad -$$

$$\text{Tan} x = \frac{5}{12} \quad \text{Sin} x = \frac{5}{13} : \quad /14$$

$$\cdot \text{Cos} x \quad -$$

$$\text{Cos}^2 x + \text{Sin}^2 x = 1 : \quad -$$

.A

BH = AB = 10

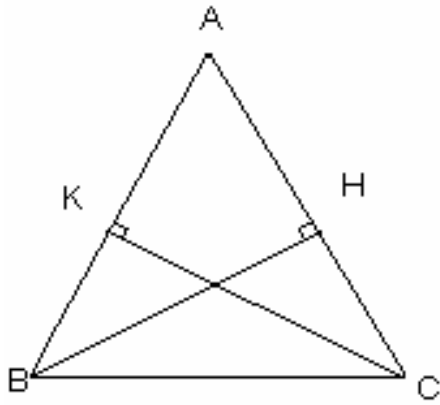
[AB] [AC]

[CK] [BH]-*

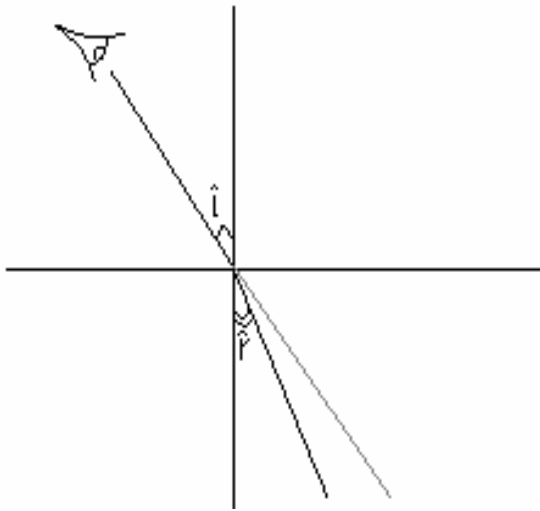
.AK = 8 6

_*

. Cos \hat{A} , Sin \hat{A} ,Tan \hat{A}



: /16



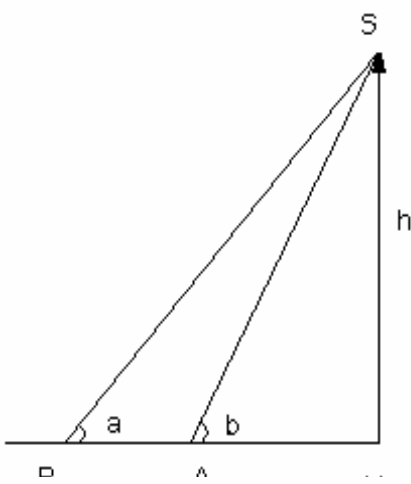
() \hat{i}
 () \hat{r}

$\text{Sin } \hat{r} = \frac{3}{4} \text{Sin } \hat{i}$:

(
 $\hat{i} = 35^\circ$ \hat{r}

(
 $\hat{r} = 45^\circ$ \hat{i}

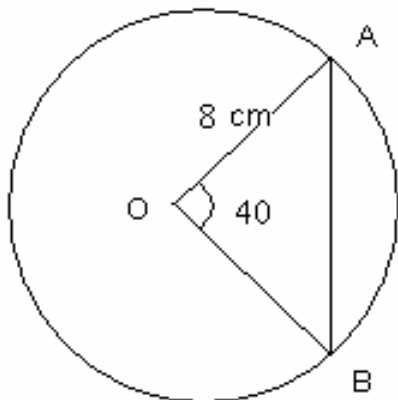
/17



h
 $a = 58.5$, $b = 35.1$
 $AB = 18.7\text{m}$
 BHS AHS (

.h BH AH (

/18

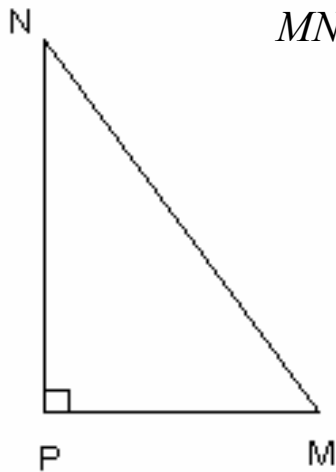


θ b A
 $\hat{AOB} = 40^\circ$

(
 .[AB] [OH]

AB (

$\frac{1}{10}$

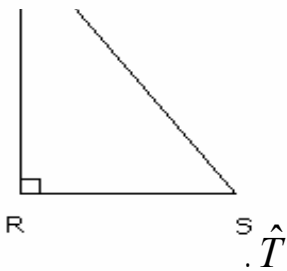


$$\frac{PN}{MN} = \cos \hat{N} = \sin \hat{M} \quad /*$$

$$\frac{PM}{MN} = \cos \hat{M} \quad /*$$

$$\frac{PM}{PN} = \tan \hat{N} \quad /*$$

$$\frac{PN}{PM} = \tan \hat{M} \quad /*$$



.R RST :

Tang , Sin , Cos :

$$\frac{RT}{RS} = \tan \hat{T} \quad /*$$

$$\frac{ST}{RS} = \sin \hat{T} \quad /*$$

$$\frac{ST}{RT} = \cos \hat{T} \quad /*$$

$$\frac{RT}{ST} = \tan \hat{S} \quad /*$$

$$\frac{RS}{ST} = \sin \hat{S} \quad /*$$

$$\tan 45^\circ = 1, \quad \sin 40^\circ = 0.6428, \quad \cos 35^\circ = 0.8192$$

$$\tan 90^\circ = \infty, \quad \cos 50^\circ = 0.6428, \quad \sin 65^\circ = 0.9063$$

$$\hat{A} = 71^\circ : \quad \cos \hat{A} = \frac{1}{3}$$

$$\hat{A} = 71^\circ : \quad \sin \hat{A} = \sqrt{0.9}$$

$$\hat{A} = 59^\circ : \quad \tan \hat{A} = \frac{5}{3}$$

$$NP = \frac{6.3}{\sin 72^\circ} \quad NP = \frac{MP}{\sin \hat{N}} \quad \sin \hat{N} = \frac{MP}{NP}$$

.NP = 6.62 cm :

$$AC = BC \times \sin \hat{B} \quad \sin \hat{B} = \frac{AC}{BC}$$

.AC = 4.91 cm : AC = 5.3 x Sin 68

$$EU = UN \times \tan \hat{N} \quad \tan \hat{N} = \frac{EU}{UN}$$

EU = 1.82 cm : EU = 5 x Tang 20°

$$\hat{B} = 42.5^\circ \quad \sin \hat{B} = \frac{4.7}{7.5} \quad \sin \hat{B} = \frac{AC}{BC}$$

$$\hat{R} = 42.5^\circ \quad \sin \hat{R} = \frac{4.7}{7.5} \quad \sin \hat{R} = \frac{TR}{RS}$$

$$\hat{G} = 55^\circ \dots \quad \sin \hat{G} = \frac{5}{3.5} \quad \sin \hat{G} = \frac{EF}{EG}$$

:

$$\hat{A} = 180^\circ - \dots - \dots ; :$$

$$\hat{A} = 180^\circ - \hat{B} - \hat{G}$$

$$A \approx :$$

: 12

$$\cos^2 x + \sin^2 x = 1$$

:

$$\sin^2 x = 1 - \cos^2 x$$

$$\sin^2 x = 1 - \left(\frac{5}{5}\right)^2 = 1 - \frac{95}{25} :$$

$$\sin^2 x = \frac{16}{25}$$

$$\sin = \frac{4}{5} :$$

$$\text{Tang} = \frac{4}{3} < \text{Tang} x = \frac{5}{3}, \text{Tang} x = \frac{\sin x}{\cos x}$$