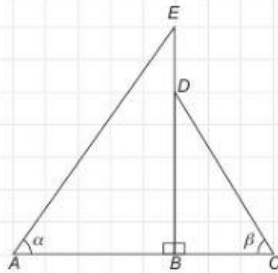


5.1 Sinus, Kosinus dan Tangen bagi Sudut Tirus dalam Segi Tiga Bersudut Tegak

- S.P: 5.1.1** Mengenal pasti sisi bertentangan dan sisi bersebelahan berdasarkan suatu sudut tirus dalam segi tiga bersudut tegak.
S.P: 5.1.2 Membuat dan menentukan konjektur tentang hubungan antara sudut tirus dan nisbah sisi segi tiga bersudut tegak, dan seterusnya mentakrifkan sinus, kosinus dan tangen.
S.P: 5.1.3 Membuat dan menentukan konjektur tentang kesan perubahan saiz sudut terhadap nilai sinus, kosinus dan tangen.

Kenal pasti sisi bertentangan, sisi bersebelahan dan hipotenus bagi sudut yang diberi. TP 1

Identify the opposite side, adjacent side and hypotenuse for the angles given.



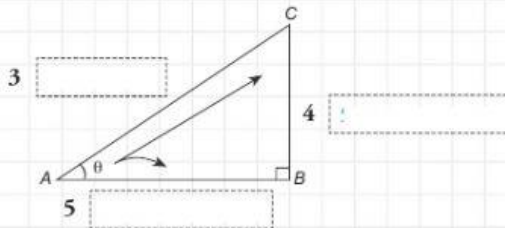
	Sudut Angle	Sisi bertentangan Opposite side	Sisi bersebelahan Adjacent side	Hipotenus Hypotenuse
1	α			
2	β			

Isi tempat kosong dengan jawapan yang betul. TP 2

Fill in the blanks with the correct answer.

Seterusnya, lengkapkan jadual berdasarkan maklumat dalam rajah. TP 2 HEBAT MATEMATIK MODUL 30 Gangsa

Hence, complete the table based on the information in the diagram.

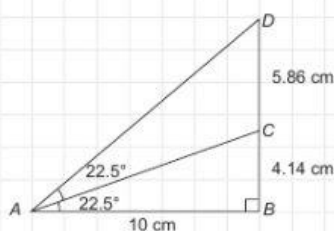


6	$\sin \theta$	$\frac{\text{Sisi bertentangan}}{\text{Hipotenus}}$	$\frac{BC}{AC}$
7	$\cos \theta$		
8	$\tan \theta$		

Rajah di bawah menunjukkan sebuah segi tiga bersudut tegak. Cari nisbah trigonometri berikut.

TP 2 HEBAT MATEMATIK MODUL 30 Gangsa

The diagram below shows a right-angled triangle. Find the following trigonometric ratios.



	Nisbah trigonometri Trigonometric ratios	$\theta = 22.5^\circ$	$\theta = 45^\circ$
9	$\sin \theta$	$\frac{4.14}{10.82} = 0.383$	$\frac{10}{14.14} = 0.707$
10	$\cos \theta / \cos \theta$		
11	$\tan \theta$		



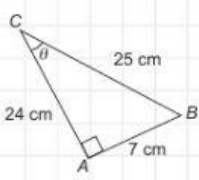
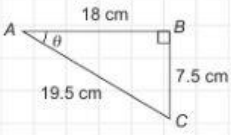
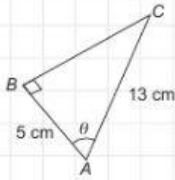
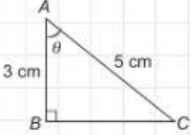
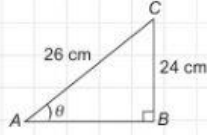
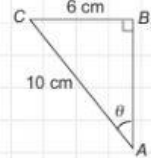
5.1 Sinus, Kosinus dan Tangen bagi Sudut Tirus dalam Segi Tiga Bersudut Tegak**S.P: 5.1.4** Menentukan nilai sinus, kosinus dan tangen suatu sudut tirus.**Cari nilai $\sin \theta$ bagi setiap rajah yang berikut. TP 3 HEBAT MATEMATIK MODUL 30** GangsaFind the value of $\sin \theta$ in each of the following diagrams.

1 $\sin \theta = \frac{5}{13}$	2 $\sin \theta =$ $=$	3 $\sin \theta =$ $=$
4 $AC = \sqrt{24^2 + 10^2} = 26$ $\sin \theta = \frac{24}{26}$ $= \frac{12}{13}$	5 $AB =$ $\sin \theta =$ $=$	6 $AC =$ $\sin \theta =$

Cari nilai $\cos \theta$ bagi setiap rajah yang berikut. TP 3 HEBAT MATEMATIK MODUL 30 GangsaFind the value of $\cos \theta$ in each of the following diagrams.

7 $\cos \theta = \frac{3}{5}$	8 $\cos \theta =$ $=$	9 $\cos \theta =$ $=$
10 $AC = \sqrt{6^2 + 8^2} = 10$ $\cos \theta = \frac{8}{10}$ $= \frac{4}{5}$	11 $AB =$ $\cos \theta =$ $=$	12 $AC =$ $\cos \theta =$ $=$

5.1 Sinus, Kosinus dan Tangen bagi Sudut Tirus dalam Segi Tiga Bersudut Tegak**5.P: 5.1.4** Menentukan nilai sinus, kosinus dan tangen suatu sudut tirus.Cari nilai $\tan \theta$ bagi setiap rajah yang berikut. **TP 3** **HEBAT MATEMATIK MODUL 30** GangsaFind the value of $\tan \theta$ in each of the following diagrams.

1  $\tan \theta = \frac{7}{24}$	2  $\tan \theta =$ $=$	3  $BC =$ $=$ $\tan \theta =$
4  $BC = \sqrt{5^2 - 3^2} = 4$ $\tan \theta = \frac{4}{3}$	5  $AB =$ $\tan \theta =$ $=$	6  $AB =$ $\tan \theta =$ $=$

Hitung nilai x tanpa melukis sebarang segi tiga bersudut tegak. **TP 3**Find the value of x without drawing any right-angled triangle.

7 $\sin \theta = x$, $\cos / \cos \theta = \frac{2}{3}$, $\tan \theta = \frac{\sqrt{5}}{2}$ $\tan \theta = \frac{\sin \theta}{\cos \theta}$ $\frac{\sqrt{5}}{2} = \frac{x}{\frac{2}{3}}$ $x = \frac{\sqrt{5}}{2} \times \frac{2}{3}$ $x = \frac{\sqrt{5}}{3}$ CONTOH	8 $\sin \theta = \frac{3}{5}$, $\cos / \cos \theta = x$, $\tan \theta = \frac{3}{4}$	9 $\sin \theta = \frac{5}{7}$, $\cos / \cos \theta = \frac{2\sqrt{6}}{7}$, $\tan \theta = x$
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5.1 Sinus, Kosinus dan Tangen bagi Sudut Tirus dalam Segi Tiga Bersudut Tegak**S.P: 5.1.4** Menentukan nilai sinus, kosinus dan tangen suatu sudut tirus.**Cari nilai x bagi setiap yang berikut. TP 3 HEBAT MATEMATIK MODUL 30 Perak**Find the value of x in each of the following.

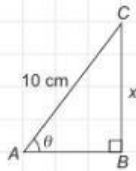
- 1**
- Diberi
- $\sin \theta = \frac{2}{2.5}$
- .

Given $\sin \theta = \frac{2}{2.5}$.

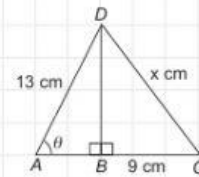
$$\sin \theta = \frac{2}{2.5}$$

$$\frac{x}{10} = \frac{2}{2.5}$$

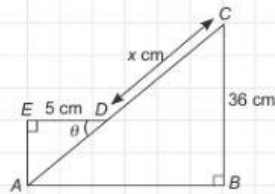
$$x = \frac{2}{2.5} \times 10$$
$$= 8 \text{ cm}$$

CONTOH PENGIRAAN

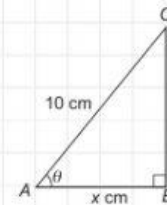
- 2**
- ABC
- ialah garis lurus dan diberi
- $\sin \theta = \frac{24}{26}$
- .

 ABC is a straight line and given $\sin \theta = \frac{24}{26}$.

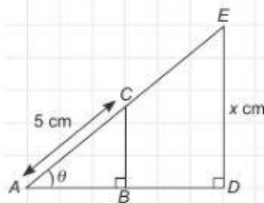
- 3**
- ADC
- ialah garis lurus dan diberi
- $\sin \theta = \frac{12}{13}$
- .

 ADC is a straight line and given $\sin \theta = \frac{12}{13}$.

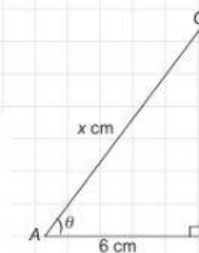
- 4**
- Diberi
- $\cos \theta = \frac{3}{5}$
- .

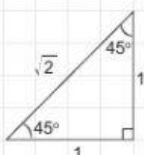
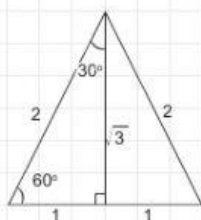
Given $\cos \theta = \frac{3}{5}$.

- 5**
- ABD
- ialah garis lurus. Diberi
- $AB = BD$

dan $\cos \theta = \frac{3}{5}$. ABD is a straight line. Given $AB = BD$ and $\cos \theta = \frac{3}{5}$.

- 6**
- Diberi
- $\tan \theta = \frac{4}{3}$
- .

Given $\tan \theta = \frac{4}{3}$.

5.1 Sinus, Kosinus dan Tangen bagi Sudut Tirus dalam Segi Tiga Bersudut Tegak**S.P: 5.1.5** Menentukan nilai sinus, kosinus dan tangen sudut 30° , 45° dan 60° tanpa menggunakan kalkulator.**Lengkapkan jadual berdasarkan segi tiga yang diberikan. TP 3***Complete the table based on the given triangles.*

θ	Sudut istimewa/Special angles				
	0°	30°	45°	60°	90°
1 $\sin \theta$		$\frac{1}{2}$		$\frac{\sqrt{3}}{2}$	1
2 $\cos \theta$	1		$\frac{1}{\sqrt{2}}$		0
3 $\tan \theta$		$\frac{1}{\sqrt{3}}$		$\sqrt{3}$	

Tanpa menggunakan kalkulator saintifik, cari nilai bagi setiap yang berikut. TP 3*Without using a scientific calculator, find the value of each of the following.*

4 $\sin 45^\circ + \cos 45^\circ$ $\sin 45^\circ + \cos 45^\circ$ $= \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}}$ $= \sqrt{2}$	5 $\tan 45^\circ - \cos 60^\circ$ $\tan 45^\circ - \cos 60^\circ$ $=$ $=$	6 $3(\sin 60^\circ + \cos 30^\circ)$ $3(\sin 60^\circ + \cos 30^\circ)$ $=$ $=$
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Tukarkan sudut yang berikut kepada darjah dan minit. TP 3*Convert the following angles to degrees and minutes.*

7 $15.6^\circ =$ $= 15^\circ + (0.6 \times 60)'$ $= 15^\circ + 36'$ $= 15^\circ 36'$	8 $37.2^\circ =$ $=$ $=$ $=$	9 $93.4^\circ =$ $=$ $=$ $=$
--	--	--

Tukarkan sudut yang berikut kepada darjah. TP 3*Convert the following angles to degrees.*

10 $5^\circ 12' =$ $=$ $=$ $=$	11 $41^\circ 48' =$ $=$ $=$ $=$	12 $76^\circ 18' =$ $=$ $=$ $=$
--	---	---

5.1 Sinus, Kosinus dan Tangen bagi Sudut Tirus dalam Segi Tiga Bersudut Tegak

S.P: 5.1.6 Melakukan pengiraan yang melibatkan sinus, kosinus dan tangen.
S.P: 5.1.7 Menyelesaikan masalah yang melibatkan sinus, kosinus dan tangen.

Cari nilai yang berikut menggunakan kalkulator saintifik. Berikan jawapan betul kepada empat tempat perpuluhan. **TP4**

Find the value of the following using a scientific calculator. Give the answer correct to four decimal places.

1 $\sin 25^\circ$	2 $\cos 56.6^\circ$	3 $\tan 60^\circ 54'$
=	=	=

Cari nilai θ menggunakan kalkulator saintifik. Berikan jawapan dalam darjah dan minit. **TP3**

Find the value of θ using a scientific calculator. Give the answer in degrees and minutes.

4 $\sin \theta = 0.4564$ $\sin \theta = 0.4564$ $\theta = \sin^{-1} 0.4564$ $= 27.15^\circ$ $= 27^\circ 9'$ CONTOH	5 $\cos \theta = 0.7485$	6 $\tan \theta = 1.3472$
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Selesaikan. **TP4** **HEBAT MATEMATIK MODUL 30** Perak

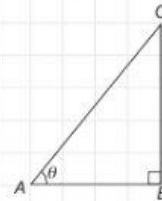
Solve.

- 7 Rajah menunjukkan segi tiga bersudut tegak ABC . Diberi $\sin \theta = \frac{24}{26}$ dan $\cos \theta = \frac{10}{26}$. Cari nilai $\tan \theta$.

Diagram shows a right-angled triangle ABC . Given $\sin \theta = \frac{24}{26}$ and $\cos \theta = \frac{10}{26}$. Find the value of $\tan \theta$.

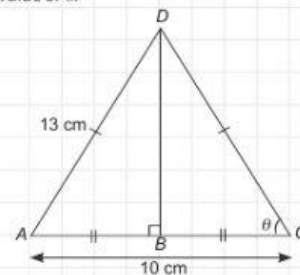
$$\begin{aligned}\tan \theta &= \frac{\sin \theta}{\cos \theta} = \frac{\frac{24}{26}}{\frac{10}{26}} \\ &= \frac{24}{10} \\ &= \frac{12}{5}\end{aligned}$$

CONTOH



- 8 Dalam rajah, ABC ialah garis lurus. Diberi $AD = DC$ dan B ialah titik tengah AC , cari nilai θ .

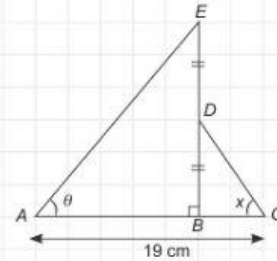
In the diagram, ABC is a straight line. Given $AD = DC$ and B is the midpoint of AC . Find the value of θ .



5.1 Sinus, Kosinus dan Tangen bagi Sudut Tirus dalam Segi Tiga Bersudut Tegak**S.P: 5.1.7** Menyelesaikan masalah yang melibatkan sinus, kosinus dan tangen.**Selesaikan masalah yang berikut. TP 5 HEBAT MATEMATIK MODUL 30 Perak***Solve the following problems.*

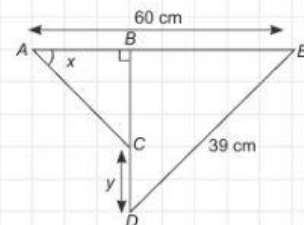
- 1 Dalam rajah, ABC ialah garis lurus. Diberi D ialah titik tengah BE dan $\cos x = \frac{9}{15}$, cari nilai θ .

In the diagram, ABC is a straight line. Given D is the midpoint of BE and $\cos x = \frac{9}{15}$, find the value of θ .



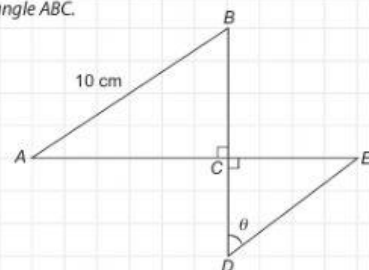
- 2 Dalam rajah, ABE ialah satu garis lurus. Diberi $\tan x = \frac{10}{24}$. Cari nilai y .

In the diagram, ABE is a straight line and $\tan x = \frac{10}{24}$. Find the value of y .



- 3 Dalam rajah, ACE ialah satu garis lurus. Diberi $\tan \theta = \frac{4}{3}$, cari luas, dalam cm^2 , segi tiga ABC . **KBAT Menilai**

In the diagram, ACE is a straight line. Given $\tan \theta = \frac{4}{3}$, find the area, in cm^2 , of triangle ABC .



- 4 Rajah menunjukkan gabungan sebuah segi tiga bersudut tegak dan sebuah segi empat tepat. Diberi panjang sisi segi empat itu ialah dua kali lebarnya dan $\sin \theta = 0.3846$. Cari lebar, dalam cm, segi empat tepat itu. **KBAT Menilai**

The diagram shows the combination of a right-angled triangle and a rectangle. Given the length of the rectangle is twice its width and $\sin \theta = 0.3846$. Find the width, in cm, of the rectangle.

