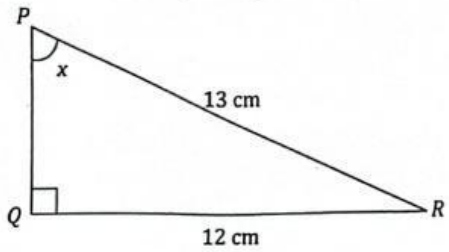
Bab 5 Nisbah Trigonometri
Trigonometric Ratios

Bahagian A

5.1 Sinus, Kosinus dan Tangen bagi Sudut Tirus dalam Segi Tiga Bersudut Tegak
Sine, Cosine and Tangent of Acute Angles in Right-angled Triangles

1 Rajah 1 menunjukkan sebuah segi tiga bersudut tegak *PQR*.
Diagram 1 shows a right-angled triangle PQR.



Rajah 1/ *Diagram 1*

Cari nilai bagi kos *x*.
Find the value of cos x.

A $\frac{12}{5}$

B $\frac{12}{13}$

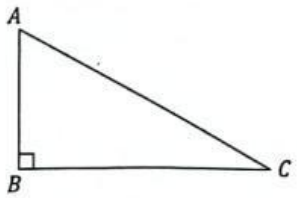
C $\frac{5}{12}$

D $\frac{5}{13}$

Tip Cemerlang

kosinus / *cosine* = sisi bersebelahan/ *adjacent side* ÷ hipotenus/ *hypotenus*

2 Rajah 2 menunjukkan sebuah segi tiga bersudut tegak *ABC*.
Diagram 2 shows a right-angled triangle ABC.



Rajah 2/ *Diagram 2*

Jika tan ∠*ACB* ialah 1, cari nilai bagi sin ∠*BAC*.
If tan ∠ACB is 1, find the value of sin ∠BAC.

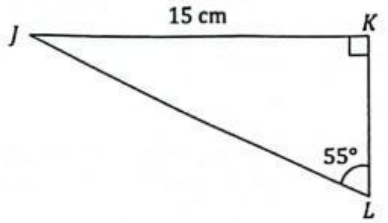
A $\frac{1}{2}$

B $\frac{1}{\sqrt{2}}$

C $\frac{1}{\sqrt{5}}$

D $\frac{\sqrt{5}}{2}$

3 Dalam Rajah 3, *JKL* ialah sebuah segi tiga bersudut tegak.
In Diagram 3, JKL is a right-angled triangle.



Rajah 3/ *Diagram 3*

Cari panjang, dalam cm, *JL*.
Find the length, in cm, of JL.

A 10.50
B 18.31
C 23.29
D 26.15

4 Jika sin θ = 0.8 dan tan θ = $\frac{4}{3}$, cari nilai kos θ.
If sin θ = 0.8 and tan θ = $\frac{4}{3}$, find the value of cos θ.

A 0.4
B 0.6
C 0.94
D 1.0

5 Diberi sin θ = $\frac{1}{2}$ dan kos θ = $\frac{\sqrt{3}}{2}$, cari nilai tan θ.
Given sin θ = $\frac{1}{2}$ and cos θ = $\frac{\sqrt{3}}{2}$, find the value tan θ.

A $\sqrt{3}$

B 1

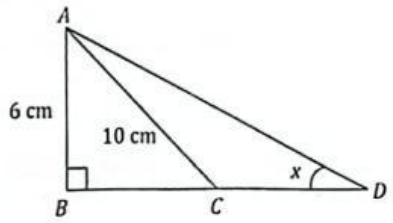
C $\frac{1}{\sqrt{2}}$

D $\frac{1}{\sqrt{3}}$

6 Tanpa menggunakan kalkulator, cari nilai bagi 3 tan 60° – 2 kos 30°.
Without using a calculator, find the value of 3 tan 60° – 2 cos 30°.

A $2\sqrt{3}$
B $\frac{\sqrt{3}}{2}$
C $\frac{2}{\sqrt{3}}$
D 1

7 Rajah 4 menunjukkan sebuah segi tiga bersudut tegak *ABC* dan garis lurus *BCD*.
Diagram 4 shows a right-angled triangle ABC and a straight line BCD.



Rajah 4/ *Diagram 4*

Jika $BC = CD$, cari tan x.
If $BC = CD$, find tan x.

A $\frac{3}{4}$

B $\frac{1}{2}$

C $\frac{3}{8}$

D $\frac{5}{8}$

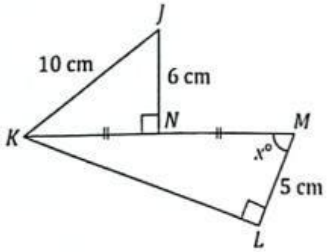
Tip Cemerlang

tangen / *tangent* = sisi bertentangan/ *opposite side* / sisi bersebelahan/ *adjacent side*

Tip Cemerlang

Nilai nisbah hendaklah dinyatakan dalam sebutan terendah.
Ratio value should be given in the simplest term.

8 Rajah 5 menunjukkan dua buah segi tiga bersudut tegak, *JKN* dan *KLM*.
Diagram 5 shows two right-angled triangles, JKN and KLM.



Rajah 5/ *Diagram 5*

Cari nilai kos x.
Find the value of cos x.

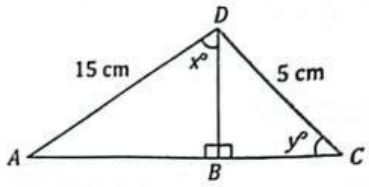
A $\frac{5}{8}$

B $\frac{1}{2}$

C $\frac{5}{16}$

D $\frac{3}{16}$

9 Dalam Rajah 6, *ABD* dan *BCD* adalah segi tiga bersudut tegak.
In Diagram 6, ABD and BCD are right-angled triangles.



Rajah 6/ *Diagram 6*

Diberi *ABC* ialah garis lurus dan kos $y = \frac{3}{5}$. Cari nilai kos x.
Given that ABC is a straight line and cos $y = \frac{3}{5}$. Find the value of cos x.

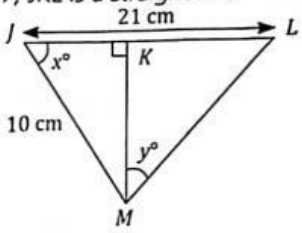
A $\frac{3}{4}$

B $\frac{4}{5}$

C $\frac{1}{3}$

D $\frac{4}{15}$

10 Dalam Rajah 7, *JKL* ialah garis lurus.
In Diagram 7, JKL is a straight line.



Rajah 7/ *Diagram 7*

Diberi sin $x = \frac{4}{5}$, cari nilai kos y.
Given that sin $x = \frac{4}{5}$, find the value of cos y.

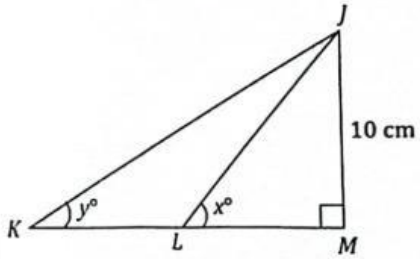
A $\frac{8}{15}$

B $\frac{8}{17}$

C $\frac{10}{21}$

D $\frac{15}{17}$

11 Dalam Rajah 8, *JKM* dan *JLM* adalah segi tiga bersudut tegak dan *KLM* adalah garis lurus.
In Diagram 8, JKM and JLM are right-angled triangles and KLM is a straight line.



Rajah 8/ *Diagram 8*

Diberi tan $x = \frac{5}{4}$ dan tan $y = \frac{2}{3}$. Cari panjang dalam cm, *KL*.
Given that tan $x = \frac{5}{4}$ and tan $y = \frac{2}{3}$. Find the length, in cm, of KL.

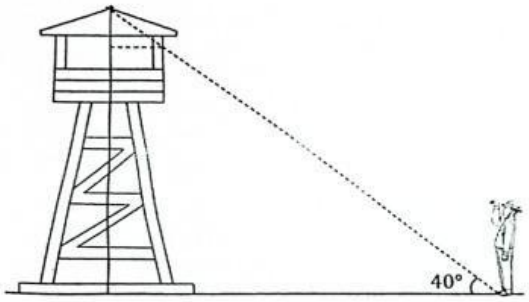
A 5

B 6

C 7

D 8

12 Rajah 9 menunjukkan kedudukan seorang renjer dari menara pemerhati.
Diagram 9 shows a ranger's position from an observation tower.

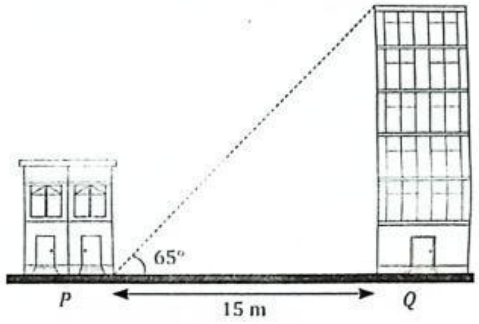


Rajah 9/ *Diagram 9*

Renjer itu berada 12.5 m dari menara itu. Berapakah tinggi, dalam m, menara itu?
The ranger is 12.5 m from the tower. What is the height, in m, of the tower?

A 9.78
B 10.49
C 10.89
D 11.25

13 Rajah 10 menunjukkan kedudukan bangunan, *P* dan *Q*.
Diagram 10 shows the buildings, P and Q.



Rajah 10/ *Diagram 10*

Berapakah tinggi, dalam m, bangunan *Q*?
What is the height, in m, of building Q?

A 6.34
B 13.59
C 14.31
D 32.17