

Penyelesaian Lengkap

PRAKTIS 6

Praktis Formatif

6.1 Nilai Sinus, Kosinus dan Tangen bagi Sudut θ ,

$$0^\circ \leq \theta \leq 360^\circ$$

The Value of Sine, Cosine and Tangent for Angle θ ,

$$0^\circ \leq \theta \leq 360^\circ$$

1 Rajah 1/Diagram 1

(a) Sukuan/Quadrant II

$$(b) 90^\circ < \theta < 180^\circ$$

$$(c) \theta = 180^\circ - 15^\circ$$

$$= 165^\circ$$

$$(d) \sin \theta = + \sin \alpha$$

Rajah 2/Diagram 2

(a) Sukuan/Quadrant III

$$(b) 180^\circ < \theta < 270^\circ$$

$$(c) \theta = 180^\circ + 15^\circ$$

$$= 195^\circ$$

$$(d) \tan \theta = + \tan \alpha$$

Rajah 3/Diagram 3

(a) Sukuan/Quadrant IV

$$(b) 270^\circ < \theta < 360^\circ$$

$$(c) \theta = 360^\circ - 15^\circ$$

$$= 345^\circ$$

$$(d) \cos/\cos \theta = +\cos/\cos \alpha$$

2

$$(a) 360^\circ - 355^\circ = 5^\circ$$

$$(b) 180^\circ - 127^\circ = 53^\circ$$

$$(c) 222.2^\circ - 180^\circ = 42.2^\circ$$

$$(d) 360^\circ - 289^\circ = 71^\circ$$

$$(e) 267.8^\circ - 180^\circ = 87.8^\circ$$

$$(f) 360^\circ - 300^\circ 15' = 59^\circ 45'$$

$$(g) 180^\circ - 123.4^\circ = 56.6^\circ$$

$$(h) 360^\circ - 326^\circ 55' = 33^\circ 5'$$

3 (a) $\sin 213^\circ$

$$= -\sin (213^\circ - 180^\circ)$$

$$= -\sin 33^\circ$$

(b) $\tan 330^\circ$

$$= -\tan (360^\circ - 330^\circ)$$

$$= -\tan 30^\circ$$

(c) $\cos/\cos 278^\circ$

$$= \cos/\cos (360^\circ - 278^\circ)$$

$$= \cos/\cos 82^\circ$$

(d) $\sin 103^\circ$

$$= \sin (180^\circ - 103^\circ)$$

$$= \sin 77^\circ$$

(e) $\cos/\cos 126^\circ$

$$= -\cos/\cos (180^\circ - 126^\circ)$$

$$= -\cos/\cos 54^\circ$$

(f) $\tan 259^\circ$

$$= \tan (259^\circ - 180^\circ)$$

$$= \tan 79^\circ$$

(g) $\sin 300.7^\circ$

$$= -\sin (360^\circ - 300.7^\circ)$$

$$= -\sin 59.3^\circ$$

(h) $\cos/\cos 205^\circ 22'$

$$= -\cos/\cos (205^\circ 22' - 180^\circ)$$

$$= -\cos/\cos 25^\circ 22'$$

(i) $\tan 125^\circ 45'$

$$= -\tan (180^\circ - 125^\circ 45')$$

$$= -\tan 54^\circ 15'$$

(j) $\sin 95^\circ 32'$

$$= \sin (180^\circ - 95^\circ 32')$$

$$= \sin 84^\circ 28'$$

(k) $\cos/\cos 94.8^\circ$

$$= -\cos/\cos (180^\circ - 94.8^\circ)$$

$$= -\cos/\cos 85.2^\circ$$

(l) $\tan 289.6^\circ$

$$= -\tan (360^\circ - 289.6^\circ)$$

$$= -\tan 70.4^\circ$$

4	Sudut Angle	Sukuan Quadrant	Nilai sinus Value of sine	Nilai kosinus Value of cosine	Nilai tangen Value of tangent
	θ	I	koordinat-y = 0.6	koordinat-x = 0.8	$\frac{\text{koordinat-y}}{\text{koordinat-x}} = \frac{0.6}{0.8} = 0.75$
	α	II	koordinat-y = 0.8	koordinat-x = -0.6	$\frac{\text{koordinat-y}}{\text{koordinat-x}} = \frac{0.8}{-0.6} = -1.333$
	β	III	koordinat-y = -0.6	koordinat-x = -0.8	$\frac{\text{koordinat-y}}{\text{koordinat-x}} = \frac{-0.6}{-0.8} = 0.75$
	σ	IV	koordinat-y = -0.92	koordinat-x = 0.4	$\frac{\text{koordinat-y}}{\text{koordinat-x}} = \frac{-0.92}{0.4} = -2.3$

5 (a)

$\sin 120^\circ$	$\sin 352^\circ$	$\sin 220^\circ$	$\sin 153^\circ$
$\sin 178^\circ$	$\sin 311.9^\circ$	$\sin 200^\circ$	$\sin 95^\circ$

Sudut yang dibulatkan berada dalam sukuan II.
The circled angles are in quadrant II.

(b)

$\cos/\cos 260^\circ 17'$	$\cos/\cos 102^\circ$
$\cos/\cos 272^\circ$	$\cos/\cos 299^\circ$
$\cos/\cos 356^\circ 48'$	$\cos/\cos 301^\circ$
$\cos/\cos 231^\circ$	$\cos/\cos 95^\circ$

Sudut yang dibulatkan berada dalam sukuan IV.
The circled angles are in quadrant IV.

(c)

$\tan 280^\circ 66'$	$\tan 202^\circ$	$\tan 190^\circ$
$\tan 103^\circ$	$\tan 284^\circ$	$\tan 341^\circ$
$\tan 234.5^\circ$	$\tan 195^\circ$	

Sudut yang dibulatkan berada dalam sukuan III.
The circled angles are in quadrant III.

6 (a) $\sin 326^\circ$
 $= -\sin (360^\circ - 326^\circ)$
 $= -\sin 34^\circ$
 $= -0.5592$

(b) $\cos/\cos 112.4^\circ$
 $= -\cos/\cos (180^\circ - 112.4^\circ)$
 $= -\cos/\cos 67.6^\circ$
 $= -0.3811$

(c) $\tan 256^\circ$
 $= \tan (256^\circ - 180^\circ)$
 $= \tan 76^\circ$
 $= 4.011$

(d) $\sin 153^\circ$
 $= \sin (180^\circ - 153^\circ)$
 $= \sin 27^\circ$
 $= 0.4540$

(e) $\cos/\cos 323^\circ$
 $= \cos/\cos (360^\circ - 323^\circ)$
 $= \cos/\cos 37^\circ$
 $= 0.7986$

(f) $\tan 289^\circ 23'$
 $= -\tan 360^\circ - 289^\circ 23'$
 $= -\tan 70^\circ 37'$
 $= -2.842$

(g) $\sin 202^\circ$
 $= -\sin (202^\circ - 180^\circ)$
 $= -\sin 22^\circ$
 $= -0.3746$

(h) $\cos/\cos 265^\circ$
 $= -\cos/\cos (265^\circ - 180^\circ)$
 $= -\cos/\cos 85^\circ$
 $= -0.08716$

(i) $\tan 108^\circ$
 $= -\tan (180^\circ - 108^\circ)$
 $= -\tan 72^\circ$
 $= -3.078$

7 (a) $\sin 315^\circ$
 $= -\sin (360^\circ - 315^\circ)$
 $= -\sin 45^\circ$
 $= -\frac{1}{\sqrt{2}}$

(b) $\cos/\cos 330^\circ$
 $= \cos/\cos (360^\circ - 330^\circ)$
 $= \cos 30^\circ$
 $= \frac{\sqrt{3}}{2}$

(c) $\tan 240^\circ$
 $= \tan (240^\circ - 180^\circ)$
 $= \tan 60^\circ$
 $= \sqrt{3}$

(d) $\sin 225^\circ$
 $= -\sin (225^\circ - 180^\circ)$
 $= -\sin 45^\circ$
 $= -\frac{1}{\sqrt{2}}$

(e) $\cos/\cos 120^\circ$
 $= -\cos/\cos (180^\circ - 120^\circ)$
 $= -\cos/\cos 60^\circ$
 $= -\frac{1}{2}$

(f) $\tan 300^\circ$
 $= -\tan (360^\circ - 300^\circ)$
 $= -\tan 60^\circ$
 $= -\sqrt{3}$

(g) $\sin 150^\circ$
 $= \sin (180^\circ - 150^\circ)$
 $= \sin 30^\circ$
 $= \frac{1}{2}$

(h) $\cos/\cos 210^\circ$
 $= -\cos/\cos (210^\circ - 180^\circ)$
 $= -\cos/\cos 30^\circ$
 $= -\frac{\sqrt{3}}{2}$

(i) $\tan 135^\circ$
 $= -\tan (180^\circ - 135^\circ)$
 $= -\tan 45^\circ$
 $= -1$

8 (a) $\tan \theta = 1.732$
Tanda $\tan \theta$ adalah positif, θ terletak pada sukuan I dan III.
Sign of $\tan \theta$ is positive, θ lies on quadrants I and III.
 $\tan^{-1} 1.732 = 60^\circ$
Maka/Thus, $\theta = 60^\circ$ atau/or $(180^\circ + 60^\circ)$
 $= 60^\circ$ atau/or 240°

(b) $\cos/\cos \theta = -0.848$
Tanda $\cos \theta$ adalah negatif, θ terletak pada sukuan II dan III.
Sign of $\cos \theta$ is negative, θ lies on quadrants II and III.
 $\cos/\cos^{-1} 0.848 = 32^\circ$
Maka/Thus, $\theta = (180^\circ - 32^\circ)$ atau/or $(180^\circ + 32^\circ)$
 $= 148^\circ$ atau/or 212°

(c) $\sin \theta = 0.9848$

Tanda $\sin \theta$ adalah positif, θ terletak pada sukuan I dan II.

Sign of $\sin \theta$ is positive, θ lies on quadrants I and II.

$\sin^{-1} 0.9848 = 80^\circ$

Maka/Thus, $\theta = 80^\circ$ atau/or $(180^\circ - 80^\circ)$

$= 80^\circ$ atau/or 100°

(d) $\cos/\cos \theta = 0.1736$

Tanda $\cos \theta$ adalah positif, θ terletak pada sukuan I dan IV.

Sign of $\cos \theta$ is positive, θ lies on quadrants I and IV.

$\cos/\cos^{-1} 0.1736 = 80^\circ$

Maka/Thus $\theta = 80^\circ$ atau/or $(360^\circ - 80^\circ)$

$= 80^\circ$ atau/or 280°

(e) $\sin \theta = -0.766$

Tanda $\sin \theta$ adalah negatif, θ terletak pada sukuan III dan IV.

Sign of $\sin \theta$ is negative, θ lies on quadrants III and IV.

$\sin^{-1} 0.766 = 50^\circ$

Maka/Thus, $\theta = (180^\circ + 50^\circ)$ atau/or $(360^\circ - 50^\circ)$

$= 230^\circ$ atau/or 310°

(f) $\tan \theta = -0.6745$

Tanda $\tan \theta$ adalah negatif, θ terletak pada sukuan II dan IV.

Sign of $\tan \theta$ is negative, θ lies on quadrants II and IV.

$\tan^{-1} 0.6745 = 34^\circ$

Maka/Thus, $\theta = (180^\circ - 34^\circ)$ atau/or $(360^\circ - 34^\circ)$

$= 146^\circ$ atau/or 326°

9 (a) Panjang jejari/Length of radius

$$= \sqrt{\left(\frac{1}{\sqrt{2}}\right)^2 + \left(\frac{1}{\sqrt{2}}\right)^2}$$

$= 1 \text{ unit}$

(b) (1, 0)

(c) (i) $\cos/\cos \theta$

$= -\cos/\cos(180^\circ - \theta^\circ)$

$= -\frac{1}{\sqrt{2}}$

(ii) $\tan \theta$

$= -\tan(180^\circ - \theta^\circ)$

$= -\frac{1}{\sqrt{2}} \div \frac{1}{\sqrt{2}}$

$= -1$

(iii) $\sin \theta$

$= \sin(180^\circ - \theta^\circ)$

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

(iv) $\sin(180^\circ - \theta^\circ) = \frac{1}{\sqrt{2}}$

$180^\circ - \theta^\circ = 45^\circ$

$\theta = 180^\circ - 45^\circ$

$= 135^\circ$

10 $\sin 15^\circ = \frac{t}{36.5}$

$t = 9.447 \text{ m}$

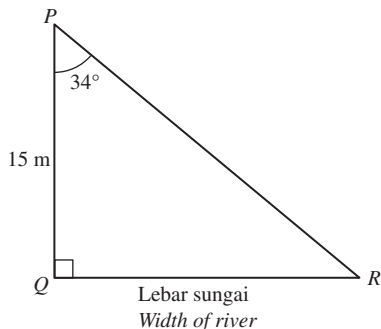
11 $\sin 20^\circ = \frac{5}{PR}$

$PR = 14.62 \text{ m}$

Masa/Time $= \frac{14.62}{5}$

$= 2.924 \text{ s}$

12



$\tan 34^\circ = \frac{l}{15}$

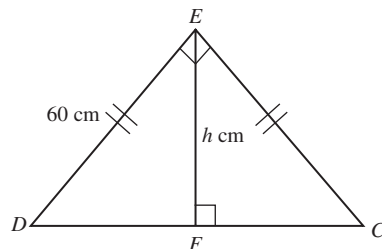
$l = 10.12 \text{ m}$

Lebar sungai/Width of the river = 10.12 m

13 (a) $DC = \sqrt{60^2 + 60^2}$

$DC = 84.85 \text{ cm}$

(b)



$h = 60 \cos/\cos 45^\circ$

$h = 42.43 \text{ cm}$

$t = 1.2 + 0.4243$

$t = 1.624 \text{ m}$

(c) $h = 55 \cos/\cos 45^\circ$

$h = 38.89 \text{ cm}$

$t = 1.2 + 0.3889$

$t = 1.589 \text{ m}$

Ketinggian pondok pada permulaan/Height of cottage at first = 1.624 m

Tinggi pondok akan dikurangkan sebanyak

The height of the cottage will be lesser

$1.624 \text{ m} - 1.589 \text{ m}$

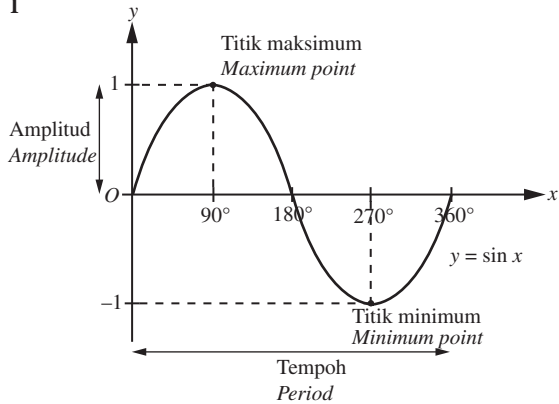
$= 0.035 \text{ m.}$

(d) $DE \cos/\cos 45^\circ = 20$

$DE = 28.28 \text{ cm}$

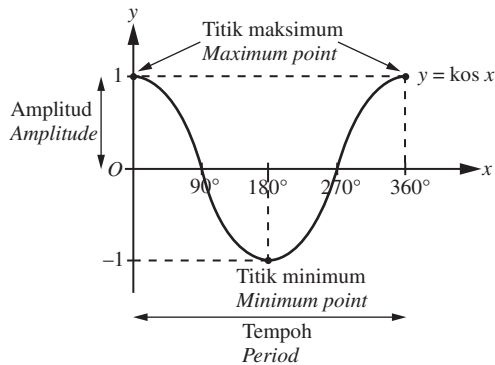
6.2 Graf Fungsi Sinus, Kosinus dan Tangen The Graphs of Sine, Cosine and Tangent Functions

1



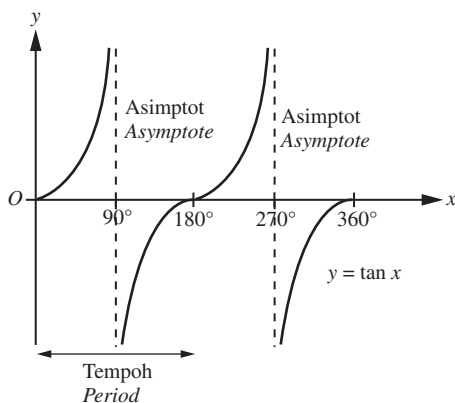
- (a) 1
- (b) 360°
- (c) $(90^\circ, 1)$
- (d) $(270^\circ, -1)$
- (e) $x = 0^\circ, 180^\circ, 360^\circ$

2



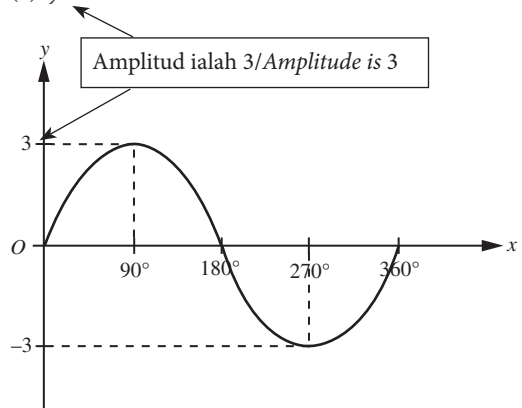
- (a) 1
- (b) 360°
- (c) $(0^\circ, 1), (360^\circ, 1)$
- (d) $(180^\circ, -1)$
- (e) $x = 90^\circ, 270^\circ$

3

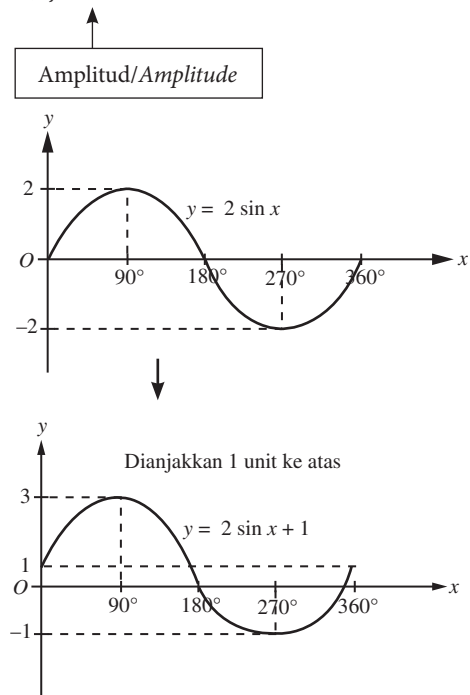


- (a) 180°
- (b) $x = 0^\circ, 180^\circ, 360^\circ$
- (c) $x = 90^\circ, x = 270^\circ$

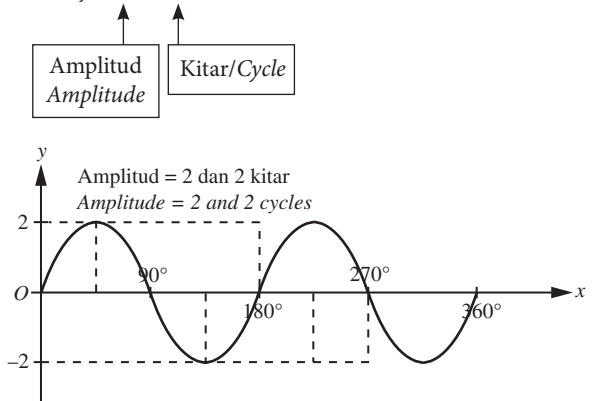
4 (a) $y = 3 \sin x$



(b) $y = 2 \sin x + 1$

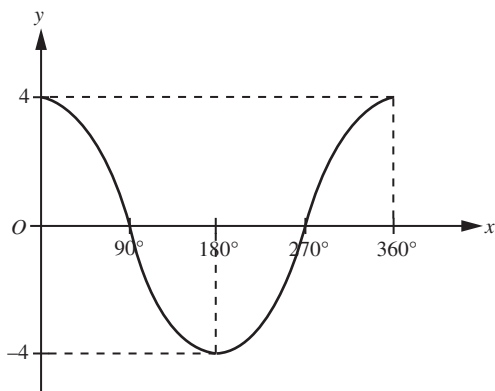


(c) $y = 2 \sin 2x$



5 (a) $y = 4 \cos x$

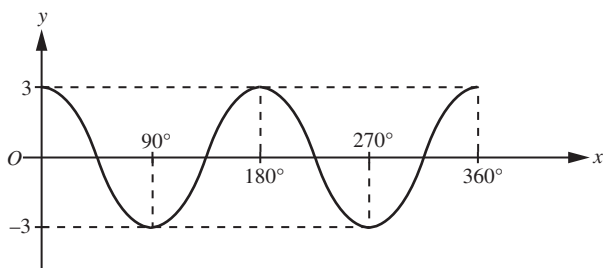
Amplitud/Amplitude



(b) $y = 3 \cos 2x$

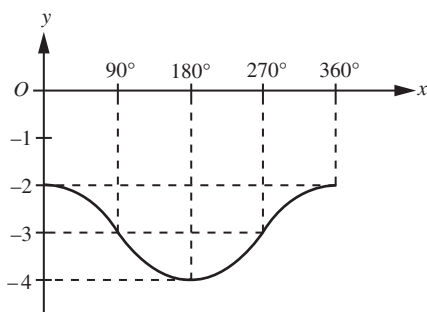
Amplitud
Amplitude

Kitar/Cycle



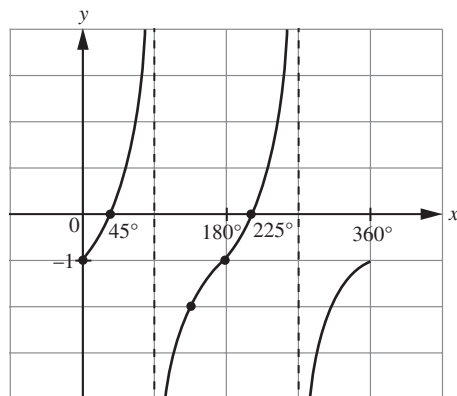
(c) $y = \cos x - 3$

Dianjakkan 3 unit ke bawah/Move 3 units down



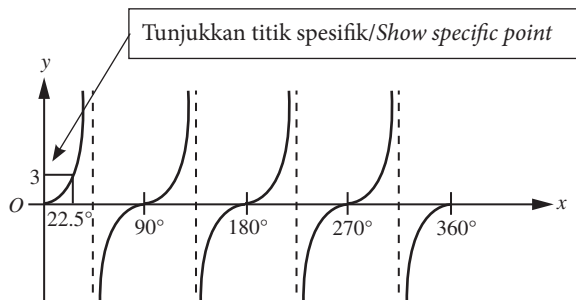
6 (a) $y = \tan x - 1$

Dianjakkan 1 unit ke bawah/Move 1 unit down



(b) $y = 3 \tan 2x$

1 kitar untuk $\tan x = 180^\circ$, 1 kitar untuk $\tan 2x = 90^\circ$.
1 cycle for $\tan x = 180^\circ$
1 cycle for $\tan 2x = 90^\circ$



7 (a) $a = 3, b = 2$

(b) 2

(c) Titik-titik maksimum/Maximum points $(45^\circ, 4)$,
 $(225^\circ, 4)$
Titik-titik minimum/Minimum points $(135^\circ, -2)$,
 $(315^\circ, -2)$.

(d) 4

Praktis Sumatif

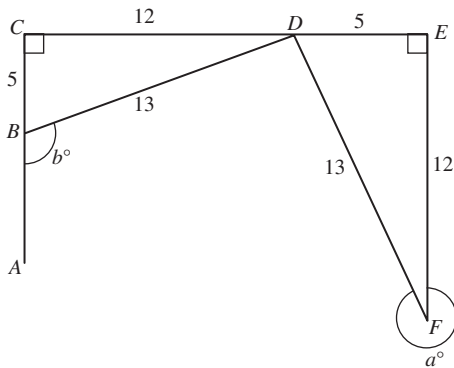
Kertas 1

- | | | | | |
|-----|-----|-----|-----|------|
| 1 A | 2 B | 3 A | 4 D | 5 B |
| 6 D | 7 C | 8 D | 9 D | 10 B |

Kertas 2

Bahagian/Section A

1



$$(a) \cos a^\circ = \cos(360^\circ - a^\circ) \\ = \frac{12}{13}$$

$$(b) \sin b^\circ = \sin(180^\circ - b^\circ) \\ = \frac{12}{13}$$

$$2 \quad RP = \sqrt{24^2 + 7^2} \\ = 25 \text{ cm}$$

$$\cos \theta = \cos(360^\circ - \theta) \\ = \frac{24}{25}$$

Positif sebab θ dalam sukuan keempat.
Positive because θ is in the fourth quadrant.

$$\cos^{-1} \frac{24}{25} = 16.26^\circ$$

$$\theta = 360^\circ - 16.26^\circ \\ = 343.74^\circ$$

$$\cos \theta = \frac{24}{25}, \theta = 343^\circ 44' \text{ atau /or } 343.74^\circ$$

$$3 \quad AC = \frac{16}{\sin 62^\circ} = 18.12 \text{ m}, BC = \frac{16}{\sin 21^\circ} = 44.65 \text{ m}$$

$$AB = 8.507 + 41.68 = 50.187 \text{ m}$$

$$\text{Perimeter} = 18.12 + 44.65 + 50.187 \\ = 112.957 \\ = 112.96 \text{ cm}$$

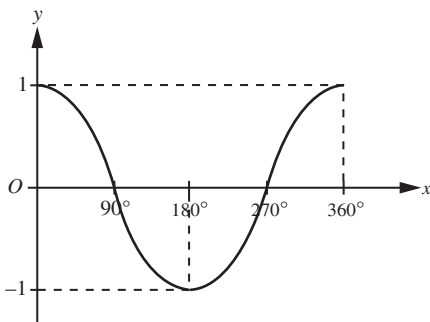
4 (a) Fungsi sinus/Sine function

$$(b) y = 5 \sin 3x - 2$$

$$(c) -7 \leq y \leq 3$$

Bahagian/Section B

5 (a)



$$(b) y = \cos x$$

$$(c) 1$$

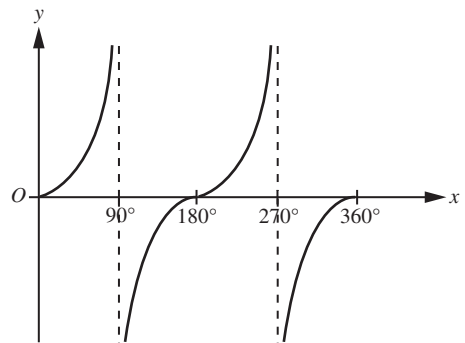
$$(d) 360^\circ$$

$$(e) (0^\circ, 1), (360^\circ, 1)$$

$$(f) (180^\circ, -1)$$

$$(g) x = 180^\circ$$

6 (a)



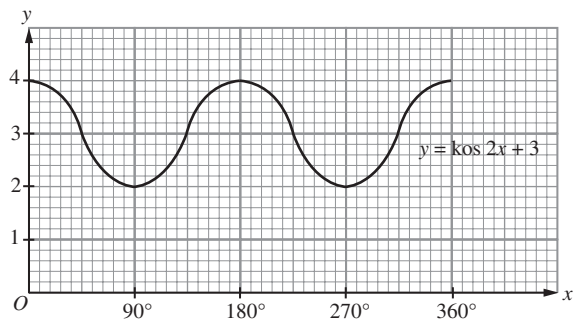
$$(b) y = \tan x$$

$$(c) x = 90^\circ, x = 270^\circ$$

$$(d) 180^\circ$$

$$(e) 0^\circ, 180^\circ, 360^\circ$$

7



$$(a) 2 \leq y \leq 4$$

$$(b) (0^\circ, 4), (180^\circ, 4), (360^\circ, 4)$$

$$(c) (90^\circ, 2), (270^\circ, 2)$$

$$(d) 4$$

$$(e) x = 180^\circ$$

8 (a) Fungsi kosinus/Cosine function

$$(b) y = -3 \cos 2x$$

$$(c) y = 3 \cos 2x + 2$$

$$(d) -1 \leq y \leq 5$$

$$(e) \text{Tidak sama/Not the same.}$$

$$y = 3 \cos 2x - 2$$

$$(f) -5 \leq y \leq 1$$