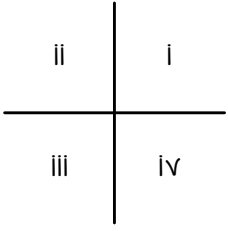


# WORKSHEET 1: SUDUT POSITIF DAN SUDUT NEGATIF

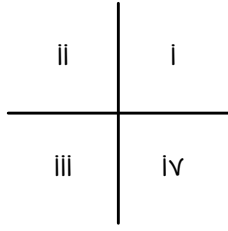
[ 1 ]

tentukan sukuan bagi setiap sudut yang berikut

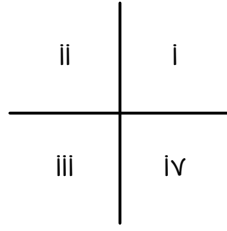
1.  $164^\circ$



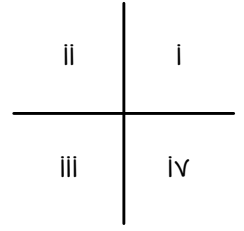
2.  $278^\circ$



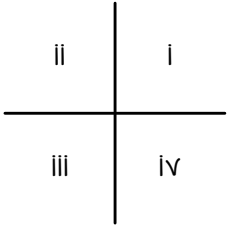
3.  $-25^\circ$



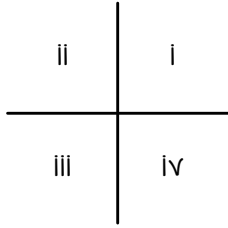
4.  $-203^\circ$



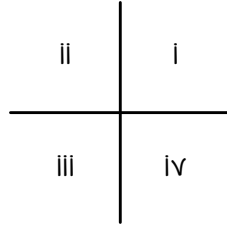
5.  $-280^\circ$



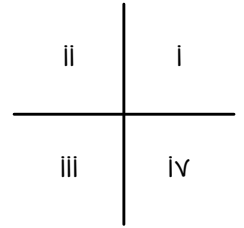
6.  $420^\circ$



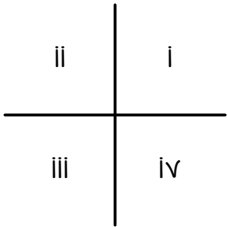
7.  $700^\circ$



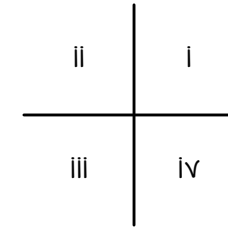
8.  $910^\circ$



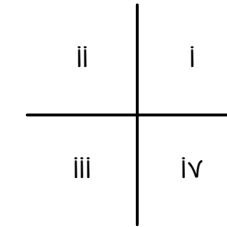
9.  $-383^\circ$



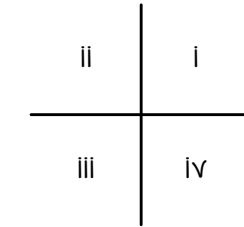
10.  $-550^\circ$



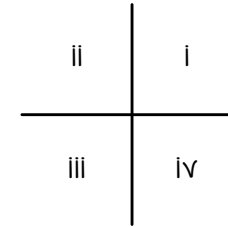
11.  $-640^\circ$



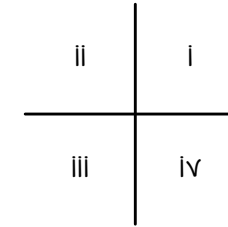
12.  $-846^\circ$



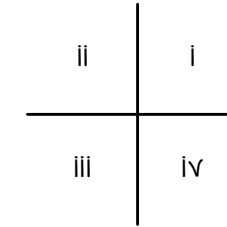
13.  $\frac{1}{3}\pi$  rad



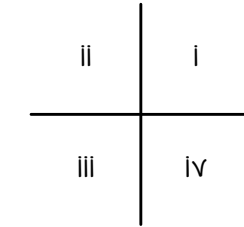
14.  $\frac{5}{4}\pi$  rad



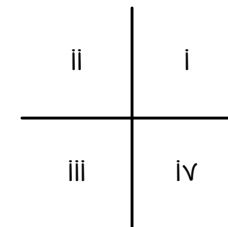
15.  $\frac{9}{5}\pi$  rad



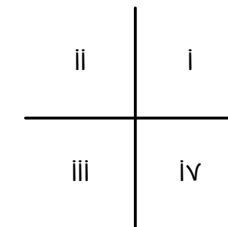
16.  $\frac{7}{3}\pi$  rad



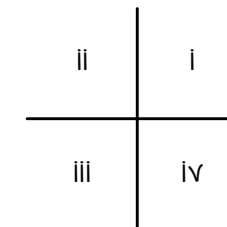
17.  $\frac{8}{3}\pi$  rad



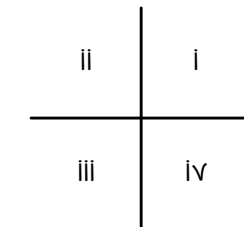
18.  $\frac{14}{5}\pi$  rad



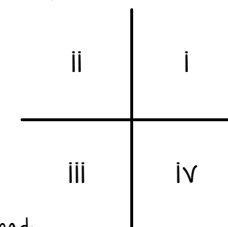
19.  $\frac{21}{4}\pi$  rad



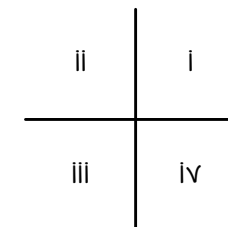
20.  $-\frac{2}{3}\pi$  rad



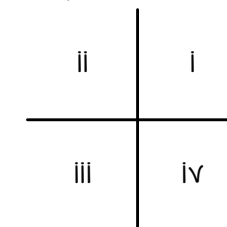
21.  $-\frac{5}{3}\pi$  rad



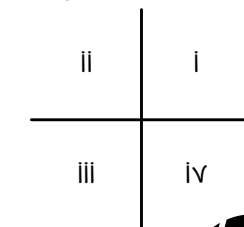
22.  $-\frac{25}{6}\pi$  rad



23.  $-\frac{33}{4}\pi$  rad



24.  $-\frac{28}{5}\pi$  rad



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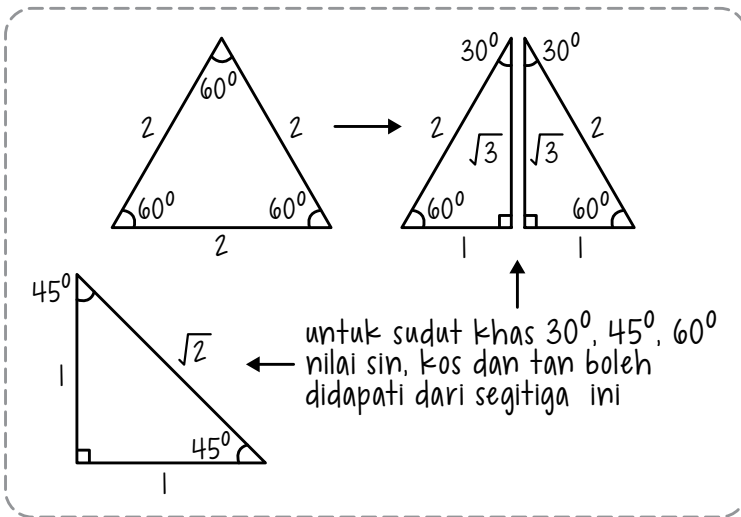
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[bit.ly/KapurPutehCloud](https://bit.ly/KapurPutehCloud)

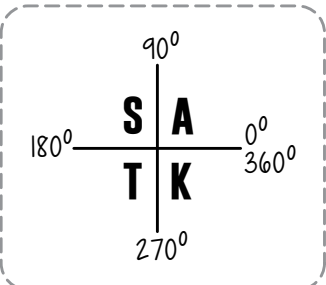
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**sudut khas**



**sekan, kosekan, kotangen**



**SOH KAH TOA**

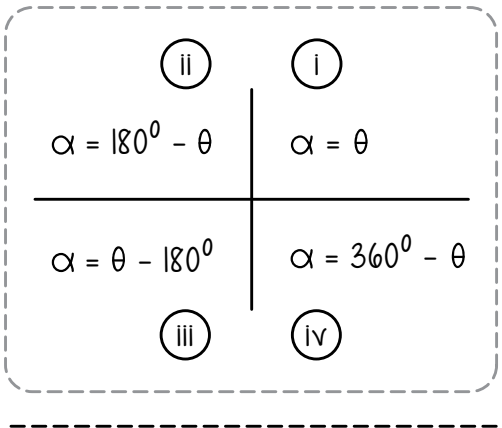
- $\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$
- $\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$
- $\tan \theta = \frac{\text{opposite}}{\text{adjacent}}$

**sudut pelengkap**

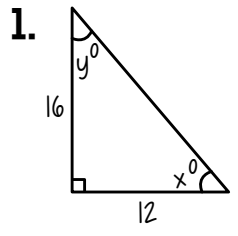
$\sin \theta = \cos (90^\circ - \theta)$   
 $\cos \theta = \sin (90^\circ - \theta)$   
 $\tan \theta = \cot (90^\circ - \theta)$   
 $\text{sek } \theta = \text{kosek } (90^\circ - \theta)$   
 $\text{kosek } \theta = \text{sek } (90^\circ - \theta)$   
 $\cot \theta = \tan (90^\circ - \theta)$

$\text{kosek } \theta = \frac{1}{\sin \theta}$   
 $\text{sek } \theta = \frac{1}{\cos \theta}$   
 $\cot \theta = \frac{1}{\tan \theta}$

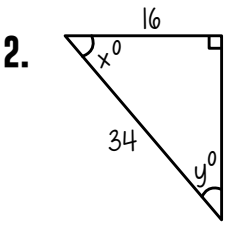
**sudut rujukan sepadan**



## WORKSHEET 2: SEKAN, KOSEKAN DAN KOTANGEN



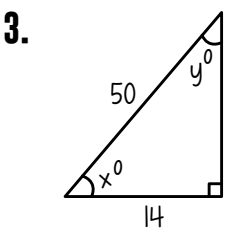
a) $\sin x^\circ =$	g) $\sin y^\circ =$
b) $\cos x^\circ =$	h) $\cos y^\circ =$
c) $\tan x^\circ =$	i) $\tan y^\circ =$
d) $\text{kosek } x^\circ =$	j) $\text{kosek } y^\circ =$
e) $\text{sek } x^\circ =$	k) $\text{sek } y^\circ =$
f) $\cot x^\circ =$	l) $\cot y^\circ =$



a) $\sin x^\circ =$	g) $\sin y^\circ =$
b) $\cos x^\circ =$	h) $\cos y^\circ =$
c) $\tan x^\circ =$	i) $\tan y^\circ =$
d) $\text{kosek } x^\circ =$	j) $\text{kosek } y^\circ =$
e) $\text{sek } x^\circ =$	k) $\text{sek } y^\circ =$
f) $\cot x^\circ =$	l) $\cot y^\circ =$

4. Diberi:

- $\sin 75^\circ = 0.9659$
- $\cos 75^\circ = 0.2588$
- $\sin 62^\circ = 0.8829$
- $\cos 62^\circ = 0.4695$
- $\sin 24^\circ = 0.4067$
- $\cos 24^\circ = 0.9135$



a) $\sin x^\circ =$	g) $\sin y^\circ =$
b) $\cos x^\circ =$	h) $\cos y^\circ =$
c) $\tan x^\circ =$	i) $\tan y^\circ =$
d) $\text{kosek } x^\circ =$	j) $\text{kosek } y^\circ =$
e) $\text{sek } x^\circ =$	k) $\text{sek } y^\circ =$
f) $\cot x^\circ =$	l) $\cot y^\circ =$

a) $\cos 15^\circ =$
b) $\text{kosek } 15^\circ =$
c) $\text{sek } 15^\circ =$
d) $\cot 15^\circ =$
e) $\cos 28^\circ =$
f) $\text{kosek } 28^\circ =$
g) $\text{sek } 28^\circ =$
h) $\cot 28^\circ =$
i) $\cos 66^\circ =$
j) $\text{kosek } 66^\circ =$
k) $\text{sek } 66^\circ =$
l) $\cot 66^\circ =$



5. Diberi  $\cos 64^\circ = k$ , cari nilai berikut dalam sebutan  $k$ .

a)  $\sin 64^\circ$

b)  $\sin 26^\circ$

c)  $\operatorname{kosek} 26^\circ$

d)  $\cot 26^\circ$

6. Diberi  $\sin 58^\circ = k$ , cari nilai berikut dalam sebutan  $k$ .

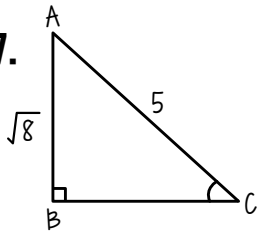
a)  $\cos 58^\circ$

b)  $\cos 32^\circ$

c)  $\operatorname{sek} 32^\circ$

d)  $\cot 32^\circ$

7.



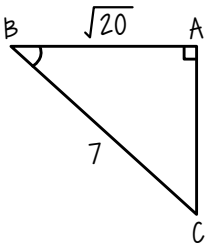
cari nilai:

a)  $\cot C$

b)  $\sin^2 C$

c)  $\frac{\cos C - \sin C}{\operatorname{kosek} C}$

8.



cari nilai:

a)  $\cot B$

b)  $\sin^2 B$

c)  $\frac{\cos B - \sin B}{\operatorname{sek} B}$

9. Diberi  $\tan A = \frac{2}{3}$ ,  $A$  ialah sudut tirus, cari:

a)  $\sin A$

b)  $\cos^2 A$

c)  $\cot A$

d)  $\operatorname{kosek} A$

e)  $\frac{4 - \operatorname{sek}^2 A}{2 - \operatorname{sek} A}$

10. Diberi  $\tan A = \frac{3}{5}$ ,  $A$  ialah sudut tirus, cari:

a)  $\sin A$

b)  $\cos^2 A$

c)  $\cot A$

d)  $\operatorname{kosek} A$

e)  $\frac{8 - \operatorname{sek}^2 A}{4 - \operatorname{sek} A}$

**1.** Diberi  $\sin 40^\circ = 0.6428$ ,  
cari:

a) $\sin 140^\circ =$
b) $\sin 220^\circ =$
c) $\sin 320^\circ =$
d) $\text{kosek } 220^\circ =$
e) $\sin 400^\circ =$
f) $\sin 580^\circ =$
g) $\sin -40^\circ =$
h) $\sin -220^\circ =$
i) $\sin -320^\circ =$

**2.** Diberi  $\cos 35^\circ = 0.8192$ ,  
cari:

a) $\cos 145^\circ =$
b) $\cos 215^\circ =$
c) $\cos 325^\circ =$
d) $\text{sek } 325^\circ =$
e) $\cos 505^\circ =$
f) $\cos 935^\circ =$
g) $\cos -35^\circ =$
h) $\cos -215^\circ =$
i) $\cos -325^\circ =$

**3.** Diberi  $\tan 65^\circ = 2.145$ ,  
cari:

a) $\tan 115^\circ =$
b) $\tan 245^\circ =$
c) $\tan 295^\circ =$
d) $\text{kot } 115^\circ =$
e) $\tan 605^\circ =$
f) $\tan 655^\circ =$
g) $\tan -65^\circ =$
h) $\tan -245^\circ =$
i) $\tan -115^\circ =$

**4.** Tanpa guna kalkulator, kira nilai berikut:

a) $\sin 30^\circ =$
b) $\cos 60^\circ =$
c) $\tan 45^\circ =$
d) $\sin 120^\circ =$
e) $\cos 150^\circ =$
f) $\tan 225^\circ =$
g) $\sin 405^\circ =$
h) $\cos 420^\circ =$
i) $\tan 585^\circ =$
j) $\sin 780^\circ =$
k) $\cos 765^\circ =$
l) $\tan 1200^\circ =$
m) $\sin -30^\circ =$
n) $\cos -60^\circ =$
o) $\tan -135^\circ =$
p) $\sin -120^\circ =$
q) $\cos -240^\circ =$
r) $\tan -315^\circ =$
s) $\sin -405^\circ =$
t) $\cos -585^\circ =$

**5.** Diberi  $\cos A = \frac{2}{5}$  dan  $270^\circ \leq A \leq 360^\circ$ , cari nilai:

a) $\sin A$
b) $\tan A$
c) $\text{kosek } A$
d) $\text{kot } A$

**6.** Diberi  $\sin A = -\frac{4}{7}$  dan  $180^\circ \leq A \leq 270^\circ$ , cari nilai:

a) $\cos A$
b) $\tan A$
c) $\text{sek } A$
d) $\text{kot } A$

**7.** Diberi  $\tan A = -\frac{5}{8}$  dan  $90^\circ \leq A \leq 180^\circ$ , cari nilai:

a) $\sin A$
b) $\cos A$
c) $\text{kosek } A$
d) $\text{sek } A$

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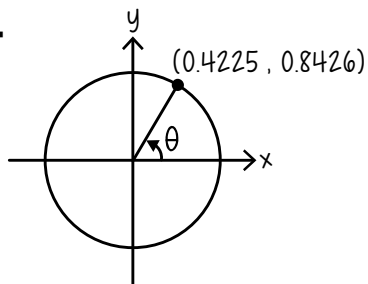


# WORKSHEET 4: BULATAN UNIT

[ 5 ]

selesaikan setiap yang berikut

1.



a)  $\sin \theta =$

b)  $\cos \theta =$

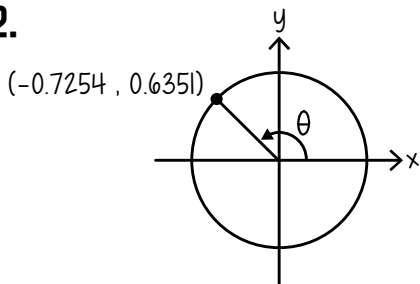
c)  $\tan \theta =$

d)  $\text{kosek } \theta =$

e)  $\text{sek } \theta =$

f)  $\text{kot } \theta =$

2.



a)  $\sin \theta =$

b)  $\cos \theta =$

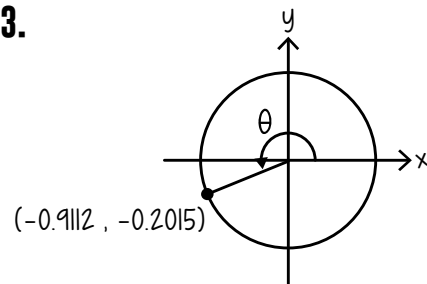
c)  $\tan \theta =$

d)  $\text{kosek } \theta =$

e)  $\text{sek } \theta =$

f)  $\text{kot } \theta =$

3.



a)  $\sin \theta =$

b)  $\cos \theta =$

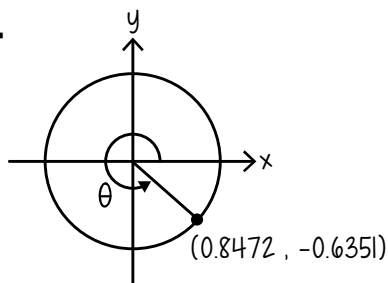
c)  $\tan \theta =$

d)  $\text{kosek } \theta =$

e)  $\text{sek } \theta =$

f)  $\text{kot } \theta =$

4.



a)  $\sin \theta =$

b)  $\cos \theta =$

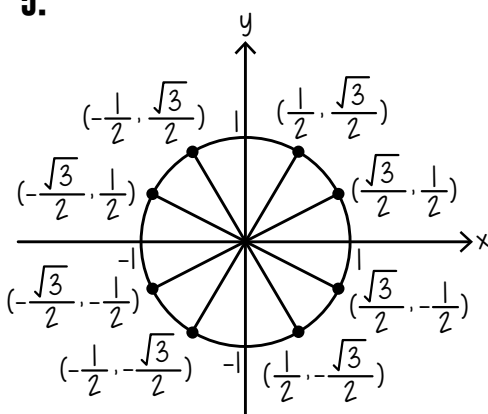
c)  $\tan \theta =$

d)  $\text{kosek } \theta =$

e)  $\text{sek } \theta =$

f)  $\text{kot } \theta =$

5.



a)  $\sin 60^\circ =$

b)  $\cos 120^\circ =$

c)  $\tan 240^\circ =$

d)  $\sin -60^\circ =$

e)  $\cos -150^\circ =$

f)  $\tan 600^\circ =$

g)  $\sin 450^\circ =$

h)  $\text{kosek } \frac{7}{2}\pi =$

i)  $\text{kot } \frac{5}{3}\pi =$

j)  $\text{sek } \frac{8}{3}\pi =$

k)  $\text{kosek } -\frac{4}{3}\pi =$

l)  $\text{kot } -\frac{13}{3}\pi =$

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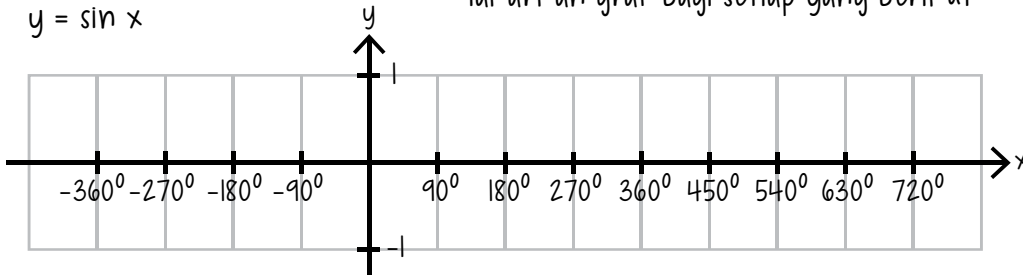
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# WORKSHEET 5: GRAF FUNGSI SINUS, KOSINUS DAN TANGEN

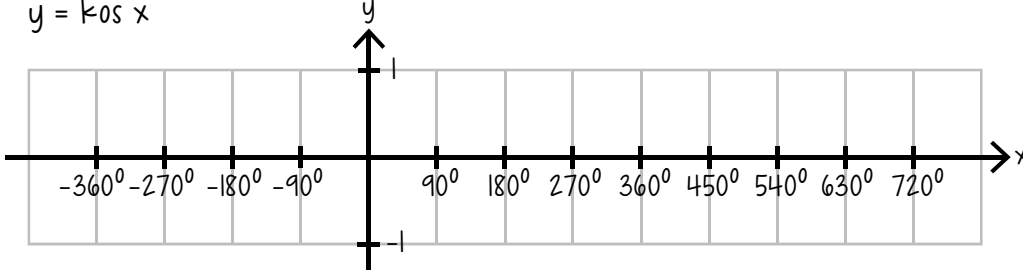
lakarkan graf bagi setiap yang berikut

1.  $y = \sin x$



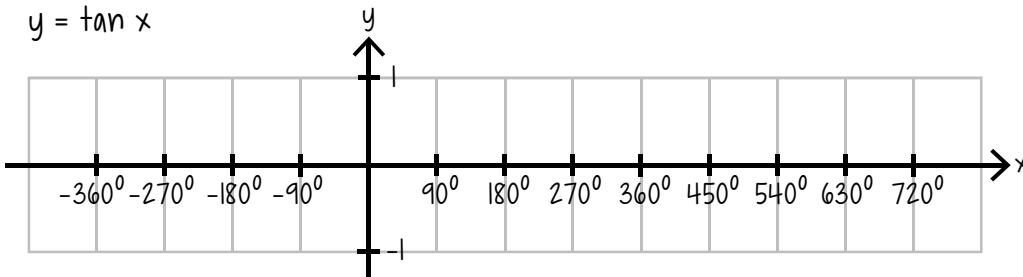
a) kala	
b) nilai maksimum	
c) nilai minimum	
d) amplitud	

2.  $y = \cos x$



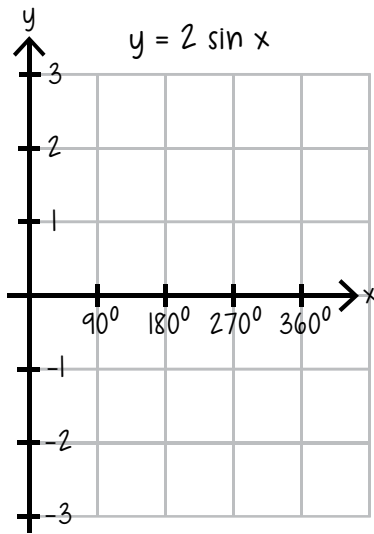
a) kala	
b) nilai maksimum	
c) nilai minimum	
d) amplitud	

3.  $y = \tan x$

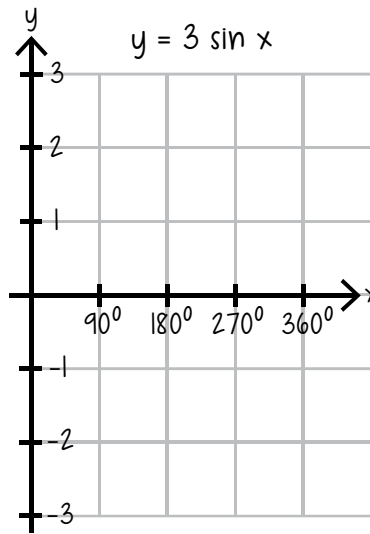


a) kala	
b) nilai maksimum	
c) nilai minimum	
d) amplitud	

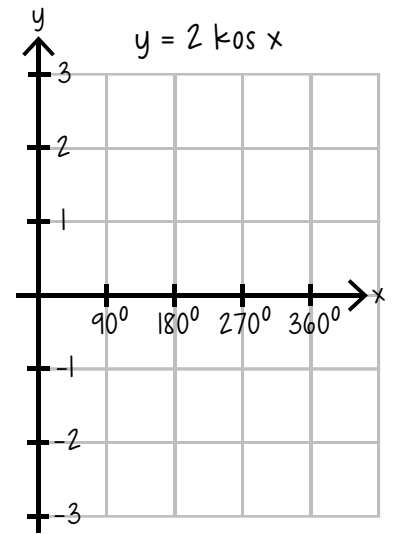
4.  $y = 2 \sin x$



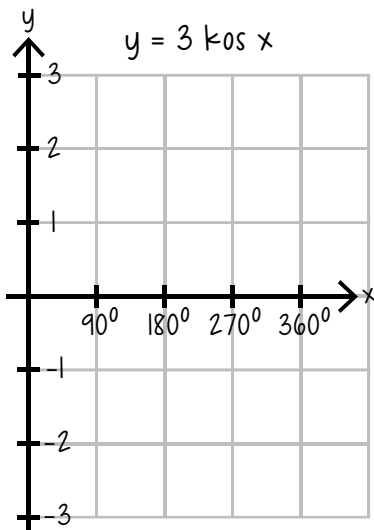
5.  $y = 3 \sin x$



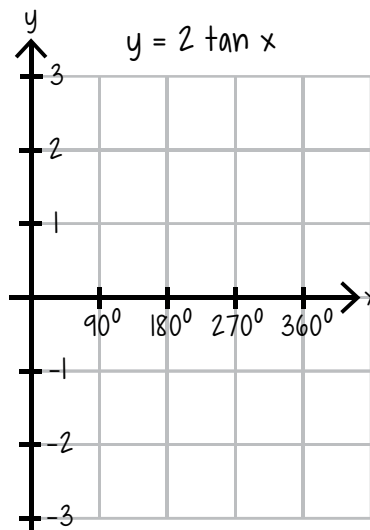
6.  $y = 2 \cos x$



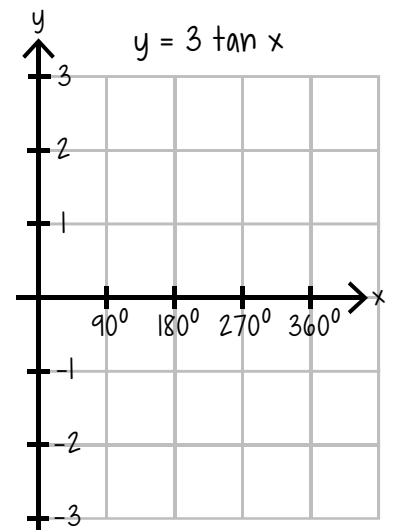
7.  $y = 3 \cos x$



8.  $y = 2 \tan x$



9.  $y = 3 \tan x$



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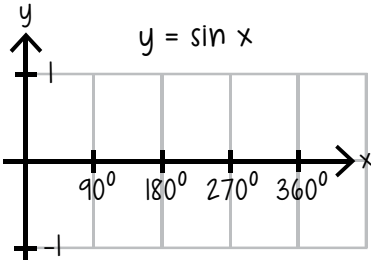
[bit.ly/KapurPutehCloud](https://bit.ly/KapurPutehCloud)



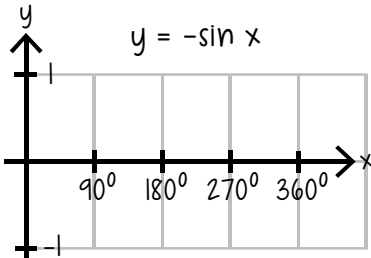
lakarkan graf bagi setiap yang berikut

10.

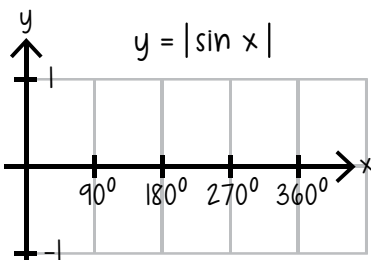
$$y = \sin x$$



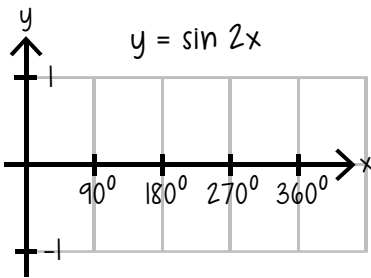
$$y = -\sin x$$



$$y = |\sin x|$$

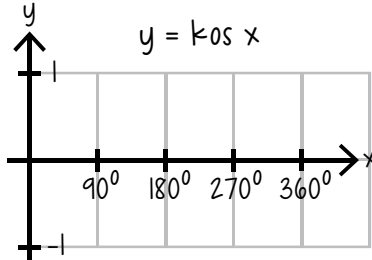


$$y = \sin 2x$$

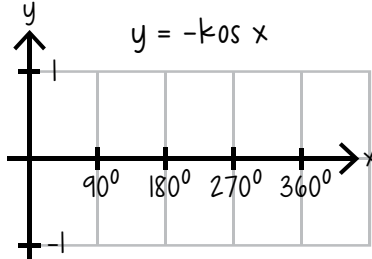


11.

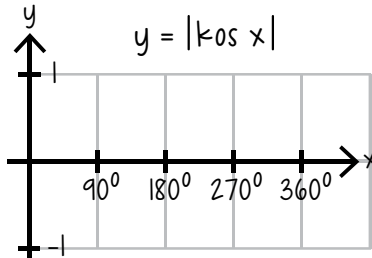
$$y = \cos x$$



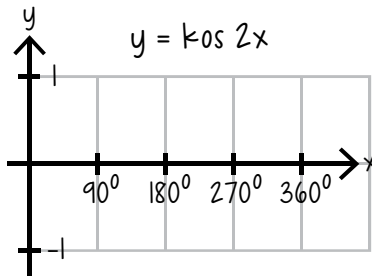
$$y = -\cos x$$



$$y = |\cos x|$$

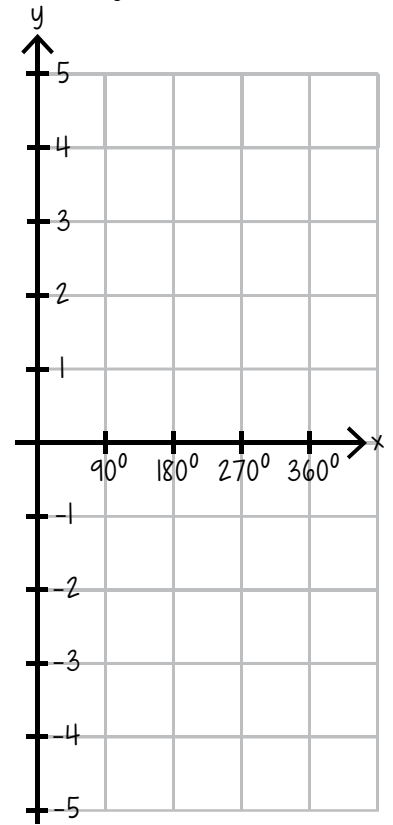


$$y = \cos 2x$$



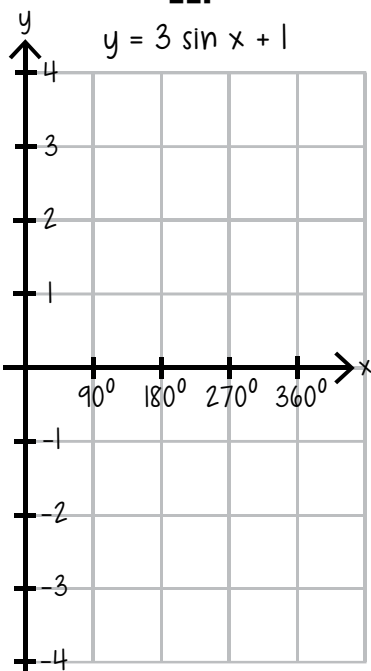
14.

$$y = 2 \sin x + 3$$



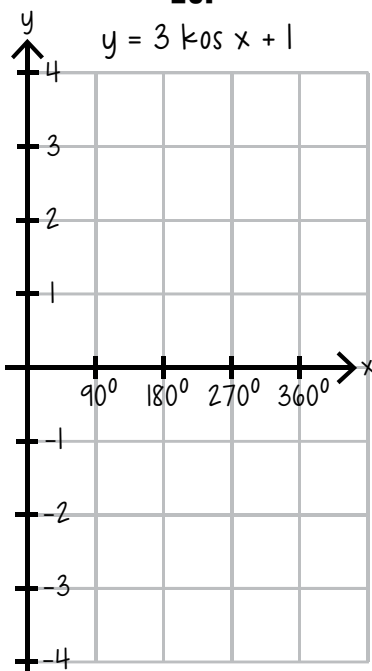
12.

$$y = 3 \sin x + 1$$



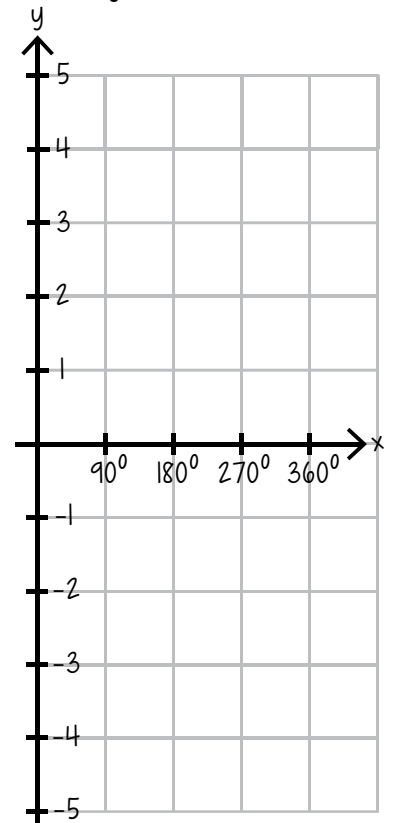
13.

$$y = 3 \cos x + 1$$



15.

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



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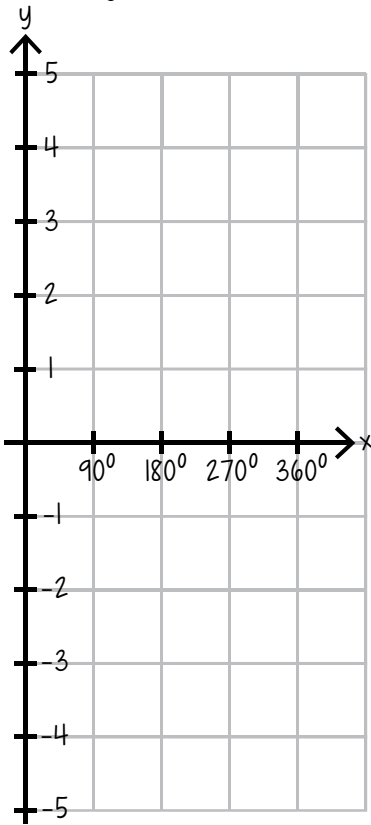


# WORKSHEET 5: GRAF FUNGSI SINUS, KOSINUS DAN TANGEN

lakarkan graf bagi setiap yang berikut

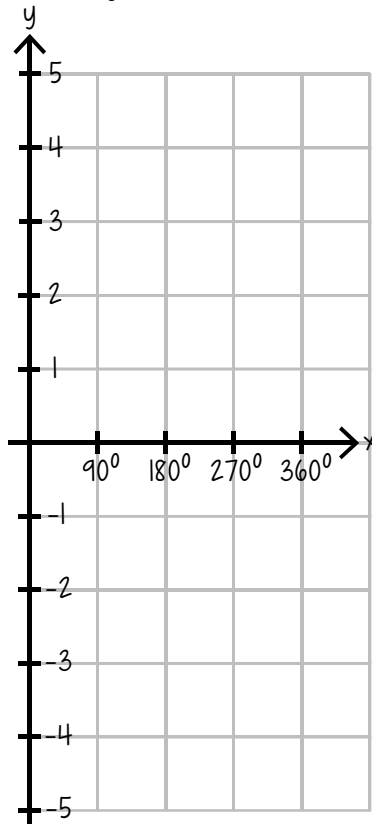
16.

$$y = 3 \sin x - 1$$



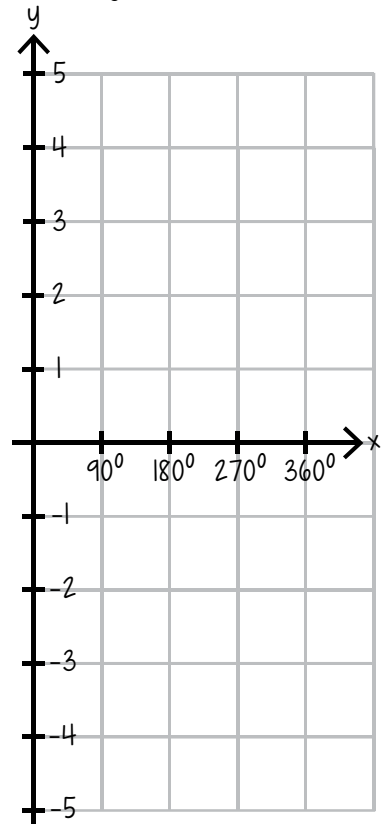
17.

$$y = 3 \cos x - 1$$



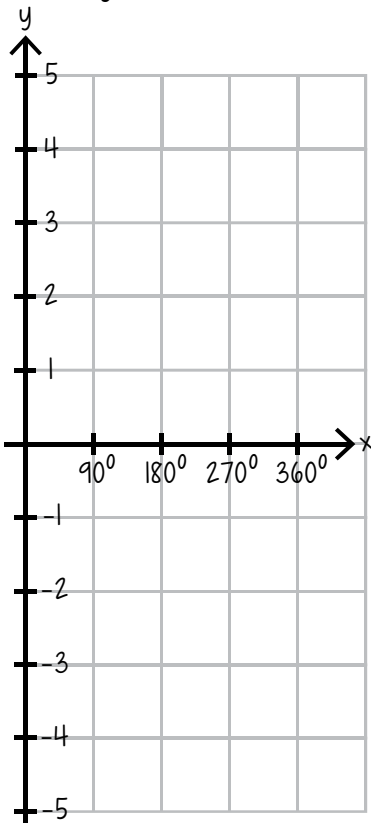
18.

$$y = 3 \tan x - 1$$



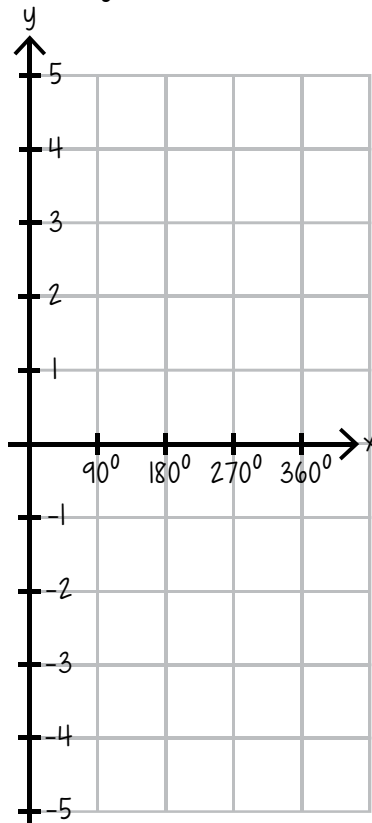
19.

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



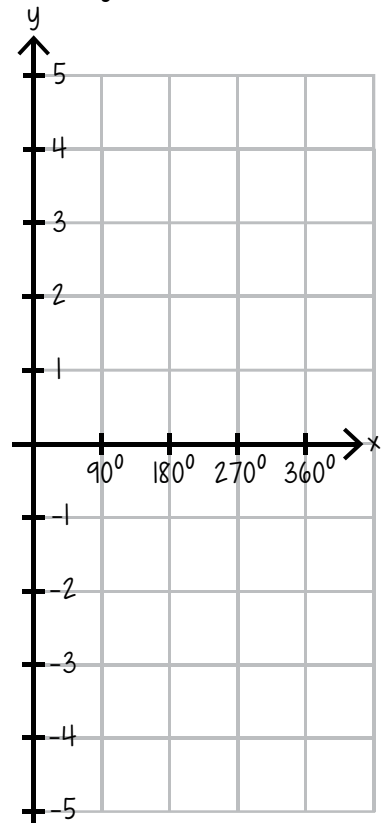
20.

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



21.

$$y = -2 + 2 \sin x$$



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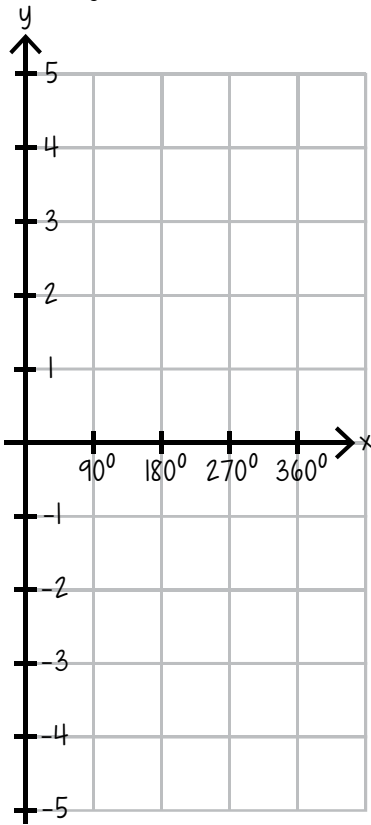




lakarkan graf bagi setiap yang berikut

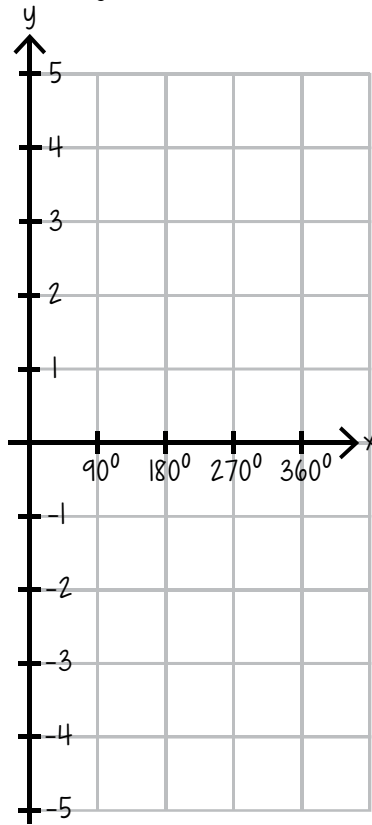
22.

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



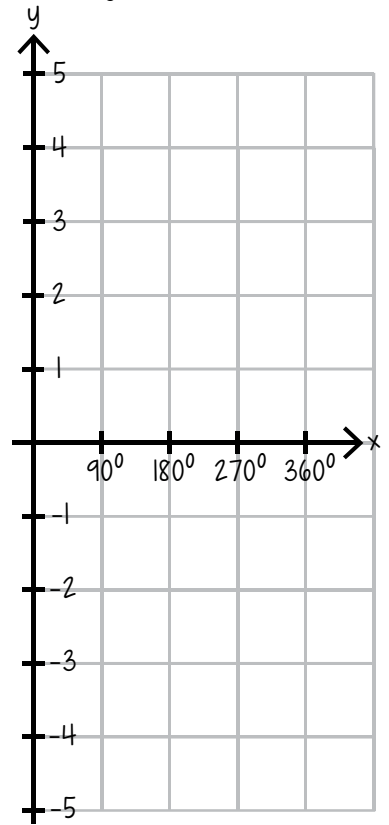
23.

$$y = 2 \sin 2x + 2$$



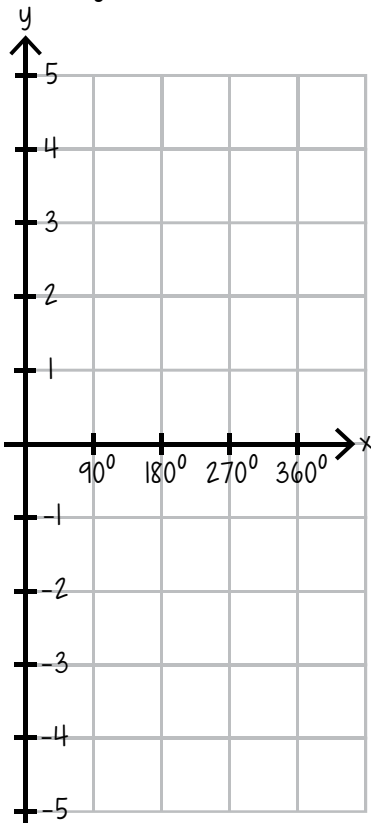
24.

$$y = 1 + 3 \sin 2x$$



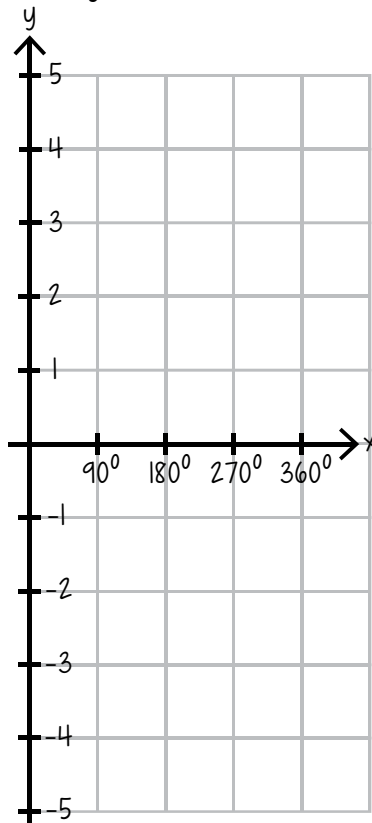
25.

$$y = 1 + 3 \cos 2x$$



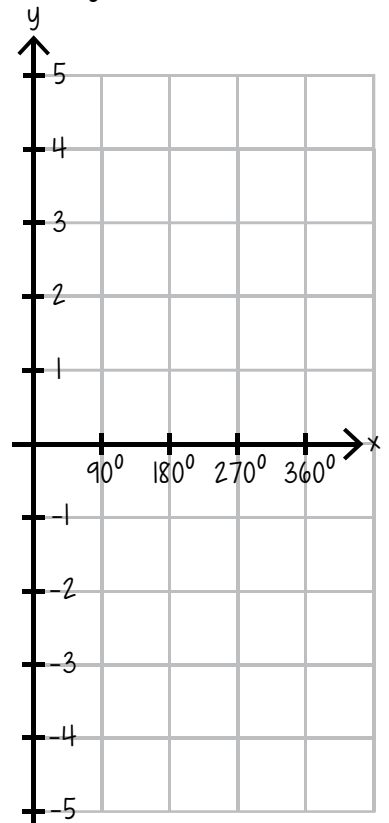
26.

$$y = -2 + 3 \sin 2x$$



27.

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



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selesaikan setiap yang berikut dengan menggunakan kertas graf

1. pada paksi yang sama lukis graf:

$$y = \sin x \text{ dan } y = \frac{x}{\pi}$$

seterusnya nyatakan penyelesaian bagi:

$$\sin x - \frac{x}{\pi} = 0$$

untuk julat  $0 \leq x \leq 2\pi$

2. pada paksi yang sama lukis graf:

$$y = \cos x \text{ dan } y = \frac{x}{\pi}$$

seterusnya nyatakan penyelesaian bagi:

$$\cos x - \frac{x}{\pi} = 0$$

untuk julat  $0 \leq x \leq 2\pi$

3. pada paksi yang sama lukis graf:

$$y = \tan x \text{ dan } y = -\frac{x}{\pi}$$

seterusnya nyatakan penyelesaian bagi:

$$\tan x + \frac{x}{\pi} = 0$$

untuk julat  $0 \leq x \leq 2\pi$

4. pada paksi yang sama lukis graf:

$$y = \sin 2x \text{ dan } y = \frac{x}{2\pi}$$

seterusnya nyatakan penyelesaian bagi:

$$2\pi \sin 2x - x = 0$$

untuk julat  $0 \leq x \leq \pi$

5. pada paksi yang sama lukis graf:

$$y = \cos 2x \text{ dan } y = \frac{x}{2\pi}$$

seterusnya nyatakan penyelesaian bagi:

$$2\pi \cos 2x - x = 0$$

untuk julat  $0 \leq x \leq \pi$

6. lukiskan graf  $y = 3 \sin 2x$  bagi  $0 \leq x \leq 2\pi$   
seterusnya, lukis garis lurus yang bersesuaian  
untuk mencari penyelesaian bagi:

$$3\pi \sin 2x + 2x = 3\pi$$

7. lukiskan graf  $y = 3 \cos 2x$  bagi  $0 \leq x \leq 2\pi$   
seterusnya, lukis garis lurus yang bersesuaian  
untuk mencari penyelesaian bagi:

$$\cos 2x = \frac{x}{3\pi} - \frac{1}{3}$$

8. lukiskan graf  $y = 3 \cos 2x + 2$  bagi  $0 \leq x \leq \pi$   
seterusnya, nyatakan penyelesaian bagi:

$$3\pi \cos 2x = 8x - \pi$$

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**WORKSHEET 7: IDENTITI ASAS**

buktikan setiap identiti trigonometri yang berikut

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

$$1 + \tan^2 \theta = \sec^2 \theta$$

$$1 + \cot^2 \theta = \operatorname{cosec}^2 \theta$$

**1.**  $1 - 2 \sin^2 A = 2 \cos^2 A - 1$

**2.**  $5 - 4 \cos^2 A = 4 \sin^2 A + 1$

**3.**  $9 - 8 \sin^2 B = 1 + 8 \cos^2 B$

**4.**  $3 - 2 \operatorname{cosec}^2 B = 1 - 2 \cot^2 B$

**5.**  $5 - 3 \cot^2 C = 8 - 3 \operatorname{cosec}^2 C$

**6.**  $(\sin A + 1)(\sin A - 1) = -\cos^2 A$

**7.**  $(\sec C + 1)(\sec C - 1) = \tan^2 C$

**8.**  $(\operatorname{cosec} D + 1)(\operatorname{cosec} D - 1) = \cot^2 D$

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# WORKSHEET 7: IDENTITI ASAS

[ 12 ]

buktikan setiap identiti trigonometri yang berikut

9. 
$$\frac{\cos A}{(1 + \sin A)(1 - \sin A)} = \sec A$$

10. 
$$\frac{\sin A}{(1 + \cos A)(1 - \cos A)} = \operatorname{cosec} A$$

11. 
$$\frac{\sin A}{(1 - \sin A)(1 + \sin A)} = \tan A \sec A$$

12. 
$$\frac{\cos B}{(1 - \cos B)(1 + \cos B)} = \cot B \operatorname{cosec} B$$

13. 
$$\tan^2 D - \cot^2 D = \sec^2 D - \operatorname{cosec}^2 D$$

14. 
$$\cot^2 E (1 + \tan^2 E) = \operatorname{cosec}^2 E$$

15. 
$$\operatorname{cosec}^2 E (1 - \sin^2 E) = \cot^2 E$$

16. 
$$\sec^2 E (1 - \cos^2 E) = \tan^2 E$$

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**WORKSHEET 7: IDENTITI ASAS**

buktikan setiap identiti trigonometri yang berikut

17.  $\sec A - \cos A = \sin A \tan A$

18.  $\csc A - \sin A = \cos A \cot A$

19.  $\tan x + \cot x = \sec x \csc x$

20.  $\frac{1}{\sec B + \tan B} = \sec B - \tan B$

21.  $\frac{1}{\csc C + \cot C} = \csc C - \cot C$

22.  $4 \sin^2 A + \cos^2 A = 3 \sin^2 A + 1$

23.  $7 - 3 \cos^2 B = 4 + 3 \sin^2 B$

24.  $\frac{1}{1 - \sin D} = \sec D(\sec D + \tan D)$

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# WORKSHEET 7: IDENTITI ASAS

[ 14 ]

buktikan setiap identiti trigonometri yang berikut

25.  $\sec^4 E - \tan^4 E = 2 \sec^2 E - 1$

26.  $3 \sin^2 x - 2 = 1 - 3 \cos^2 x$

27.  $\sec x \operatorname{cosec} x - \tan x = \cot x$

28.  $\cot^2 x - \tan^2 x = \operatorname{cosec}^2 x - \sec^2 x$

29.  $\tan^2 A (\operatorname{cosec}^2 A - 1) = 1$

30.  $\frac{\sin^2 A}{1 + \cos A} = 1 - \cos A$

31.  $\frac{1 - 2 \sin^2 A}{\cos A - \sin A} = \cos A + \sin A$

32.  $\cos^2 B - \sin^2 B = \frac{1 - \tan^2 B}{1 + \tan^2 B}$

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# WORKSHEET 7: IDENTITI ASAS

[ 15 ]

buktikan setiap identiti trigonometri yang berikut

33.  $5 \sec^2 C + 4 = 9 \sec^2 C - 4 \tan^2 C$

34.  $\sec^4 C - \sec^2 C = \tan^4 C + \tan^2 C$

35.  $\sec C = \sin C \tan C + \cos C$

36.  $\sec D = \frac{\tan D + \cot D}{\operatorname{cosec} D}$

37.  $\frac{\sin x}{1 + \cos x} + \frac{1 + \cos x}{\sin x} = 2 \operatorname{cosec} x$

38.  $\sec D = \frac{1 - \sin D}{2 \cos D} + \frac{\cos D}{2 - 2 \sin D}$

39.  $(\sec x + \tan x)(\operatorname{cosec} x - 1) = \cot x$

40.  $\cot^2 x - \cos^2 x = \cot^2 x \cos^2 x$

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rumus sudut majmuk

$$\begin{aligned} \sin(A + B) &= \sin A \cos B + \cos A \sin B \\ \sin(A - B) &= \sin A \cos B - \cos A \sin B \\ \cos(A + B) &= \cos A \cos B - \sin A \sin B \\ \cos(A - B) &= \cos A \cos B + \sin A \sin B \\ \tan(A + B) &= \frac{\tan A + \tan B}{1 - \tan A \tan B} \\ \tan(A - B) &= \frac{\tan A - \tan B}{1 + \tan A \tan B} \end{aligned}$$

rumus sudut berganda

$$\begin{aligned} \sin 2A &= 2 \sin A \cos A \\ \cos 2A &= \cos^2 A - \sin^2 A \\ &= 2 \cos^2 A - 1 \\ &= 1 - 2 \sin^2 A \\ \tan 2A &= \frac{2 \tan A}{1 - \tan^2 A} \end{aligned}$$

rumus sudut separuh

$$\begin{aligned} \sin \frac{A}{2} &= \pm \sqrt{\frac{1 - \cos A}{2}} \\ \cos \frac{A}{2} &= \pm \sqrt{\frac{1 + \cos A}{2}} \\ \tan \frac{A}{2} &= \pm \sqrt{\frac{\sin A}{1 + \cos A}} \end{aligned}$$

## WORKSHEET 8: RUMUS SUDUT MAJMUK DAN SUDUT BERGANDA

permudahkan setiap berikut kepada nisbah trigonometri tunggal

1.  $\sin 60^\circ \cos 20^\circ + \cos 60^\circ \sin 20^\circ$

2.  $\sin 70^\circ \cos 50^\circ - \cos 70^\circ \sin 50^\circ$

3.  $\cos 32^\circ \cos 28^\circ - \sin 32^\circ \sin 28^\circ$

4.  $\frac{\tan 83^\circ - \tan 37^\circ}{1 + \tan 83^\circ \tan 37^\circ}$

5.  $\cos^2 15^\circ - \sin^2 15^\circ$

6.  $2 \sin 30^\circ \cos 30^\circ$

7.  $1 - 2 \sin^2 (22.5^\circ)$

8.  $\frac{2 \tan 45^\circ}{1 - \tan^2 (45^\circ)}$

9.  $\frac{\tan 24^\circ + \tan 36^\circ}{1 - \tan 24^\circ \tan 36^\circ}$

10.  $\cos 72^\circ \cos 27^\circ + \sin 72^\circ \sin 27^\circ$

11.  $2 \sin 75^\circ \cos 75^\circ$

12.  $\cos^2 120^\circ - \sin^2 120^\circ$

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buktikan setiap identiti trigonometri berikut

1.  $\sin(90^\circ + B) = \cos B$

2.  $\cos(90^\circ - B) = \sin B$

3.  $\sin(A + 60^\circ) - \sin(A - 60^\circ) = \sqrt{3} \cos A$

4.  $\cos(A + 30^\circ) - \cos(A - 30^\circ) = -\sin A$

5.  $\sin\left(C + \frac{\pi}{6}\right) - \sin\left(C - \frac{\pi}{6}\right) = \cos C$

6.  $\cos\left(C + \frac{\pi}{3}\right) - \cos\left(C - \frac{\pi}{3}\right) = -\sqrt{3} \sin C$

7.  $\sin\left(4A - \frac{\pi}{3}\right) + \sin\left(4A + \frac{\pi}{3}\right) = \sin 4A$

8.  $\cos\left(5A - \frac{\pi}{3}\right) + \cos\left(5A + \frac{\pi}{3}\right) = \cos 5A$

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buktikan setiap identiti trigonometri berikut

**9.**  $\tan (C + 45^{\circ}) = \frac{\cos C + \sin C}{\cos C - \sin C}$

**10.**  $\sin (A - B) - \sin (A + B) = -2 \cos A \sin B$

**11.**  $\tan \left( E + \frac{\pi}{4} \right) = \frac{1 + \tan E}{1 - \tan E}$

**12.**  $\frac{\cos (A - B) - \cos (A + B)}{\sin (A + B) + \sin (A - B)} = \tan B$

**13.**  $\cot (C - D) = \frac{\cot C \cot D + 1}{\cot D - \cot C}$

**14.**  $\tan C - \tan D = \frac{\sin (C - D)}{\cos C \cos D}$

**15.**  $\csc (C + D) = \frac{\csc C \sec D}{1 + \cot C \tan D}$

**16.**  $\frac{\sin 2A}{1 + \cos 2A} = \tan A$

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buktikan setiap identiti trigonometri berikut

**17.** 
$$\frac{1 + \cos 2B}{\sin 2B} = \cot B$$

**18.** 
$$\csc D \sec D = 2 \csc 2D$$

**19.** 
$$\frac{\cos B - \sin B}{\cos 2B} = \frac{1}{\cos B + \sin B}$$

**20.** 
$$\frac{2 \tan D}{1 + \tan^2 D} = \sin 2D$$

**21.** 
$$\csc 2D = \frac{\sec D \csc D}{2}$$

**22.** 
$$\cos A - \sin A = \frac{\cos 2A}{\cos A + \sin A}$$

**23.** 
$$\tan \frac{A}{2} = \frac{1 - \cos A}{\sin A}$$

**24.** 
$$\sin 2B (\tan B + \cot B) = 2$$

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buktikan setiap identiti trigonometri berikut

25.  $\text{kosek } 2B + \text{kot } 2B = \text{kot } B$

26. 
$$\frac{\sin 4A + \sin 2A}{\cos 4A + \cos 2A + 1} = \tan 2A$$

27. 
$$\text{sek } 2B = \frac{\text{kot } B + \tan B}{\text{kot } B - \tan B}$$

28. 
$$\text{kot } (A + B) = \frac{\text{kot } A \text{ kot } B - 1}{\text{kot } A + \text{kot } B}$$

29. 
$$\tan D = \frac{\cos (C - D) - \cos (C + D)}{\sin (C - D) + \sin (C + D)}$$

30. 
$$\tan \frac{A}{2} = \frac{\sin A}{1 + \cos A}$$

31. 
$$\sin 2B = \frac{2 \tan B}{1 + \tan^2 B}$$

32. 
$$\text{sek}^2 \frac{D}{2} = \frac{2}{1 + \cos D}$$

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selesaikan setiap yang berikut

1. Diberi  $\sin A = \frac{3}{5}$ ,  $0^\circ < A < 90^\circ$ , dan  $\sin B = -\frac{12}{13}$ ,  $90^\circ < B < 270^\circ$ , cari:

- a)  $\sin (A + B)$
- b)  $\cos (A + B)$
- c)  $\tan (B - A)$
- d)  $\sin 2A$

2. Diberi  $\cos A = \frac{3}{5}$ ,  $0^\circ < A < 90^\circ$ , dan  $\tan B = -\frac{12}{5}$ ,  $90^\circ < B < 270^\circ$ , cari:

- a)  $\sin (A - B)$
- b)  $\cos (A - B)$
- c)  $\tan (B + A)$
- d)  $\cos 2B$

3. Diberi  $\sin A = -\frac{5}{13}$ ,  $90^\circ < A < 270^\circ$ , dan  $\cos B = \frac{4}{5}$ ,  $180^\circ < B < 360^\circ$ , cari:

- a)  $\sin (A + B)$
- b)  $\cos (A + B)$
- c)  $\tan (B - A)$
- d)  $\tan 2A$

4. Selesaikan setiap berikut bagi  $0^\circ \leq A \leq 360^\circ$

- a)  $\sin A = -0.5446$
- b)  $\cos A = 0.6691$
- c)  $\tan A = -0.4663$
- d)  $\sin 2A = -0.2788$
- e)  $\cos 2A = 0.3420$
- f)  $\tan 2A = -0.7265$

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# WORKSHEET 10: APLIKASI FUNGSI TRIGONOMETRI

[ 22 ]

selesaikan setiap yang berikut bagi  $0^\circ \leq A \leq 360^\circ$

5.  $\tan A + 1 = 0$

6.  $2 \sin A + 1 = 0$

7.  $3 \cos A - 2 = 0$

8.  $4 \tan A - 5 = 0$

9.  $2 \sec A - 3 = 0$

10.  $3 \cot A + 4 = 0$

11.  $-3 \operatorname{cosec} A - 4 = 0$

12.  $2 \sin A = 3 \cos A$

13.  $5 \sin A - 2 \cos A = 0$

14.  $2 \sin 2A = \sqrt{3}$

15.  $2 \cos 2A + \sqrt{3} = 0$

16.  $\tan 2A + \sqrt{3} = 0$

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# WORKSHEET 10: APLIKASI FUNGSI TRIGONOMETRI

[ 23 ]

selesaikan setiap yang berikut bagi  $0^\circ \leq A \leq 360^\circ$

17.  $\tan 3A + 1 = 0$

18.  $\cos (A + 50^\circ) = -0.7431$

19.  $\sin (A - 35^\circ) = -0.8290$

20.  $\tan (2A + 40^\circ) + \sqrt{3} = 0$

21.  $\sin 2A + \cos A = 0$

22.  $5 \tan A = 7 \sin A$

23.  $2 \cos 2A - 13 \sin A + 10 = 0$

24.  $\sin^2 A - 2 \sin A = \cos 2A$

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# WORKSHEET 10: APLIKASI FUNGSI TRIGONOMETRI

[ 24 ]

selesaikan setiap yang berikut bagi  $0^\circ \leq A \leq 360^\circ$

25.  $7 \sin A + 3 \cos 2A = 0$

26.  $\sin A = 3 \sin 2A$

27.  $\sin (A + 30^\circ) = \cos (A + 120^\circ)$

28.  $\cos (A - 60^\circ) = 3 \cos (A + 60^\circ)$

29.  $2 \sin^2 A + 7 \cos A - 5 = 0$

30.  $\cot^2 A - 3 \operatorname{cosec} A = 3$

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# WORKSHEET 10: APLIKASI FUNGSI TRIGONOMETRI

[ 25 ]

selesaikan setiap yang berikut bagi  $0^\circ \leq A \leq 360^\circ$

31.  $4 \sin 2A = 5 \cos A$

32.  $2 \cos 2A - 4 \sin A + 1 = 0$

33.  $3 \cot^2 A - 5 \operatorname{cosec} A + 1 = 0$

34.  $3 \sin A = 2 \tan A$

35.  $\cos A \sin A = \frac{1}{4}$

36.  $4 \sin (A - \pi) \cos (A - \pi) = 1$

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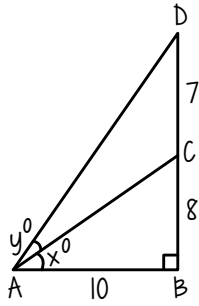
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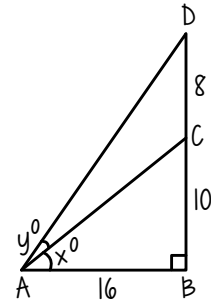


selesaikan setiap yang berikut

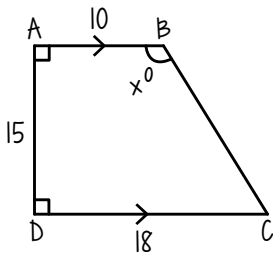
37. Cari nilai bagi:
- $\tan(x + y)$
  - $\tan x$
  - $\tan y$
  - $x$
  - $\angle BDA$
  - $\angle ACD$
  - $\angle BCA$
  - AC
  - AD



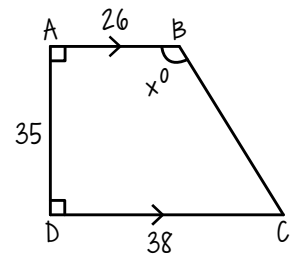
38. Cari nilai bagi:
- $\tan(x + y)$
  - $\tan x$
  - $\tan y$
  - $x$
  - $\angle BDA$
  - $\angle ACD$
  - $\angle BCA$
  - AC
  - AD



39. Cari nilai bagi:
- $\cos x$
  - $\sin 2x$
  - $\tan 2x$
  - $x$



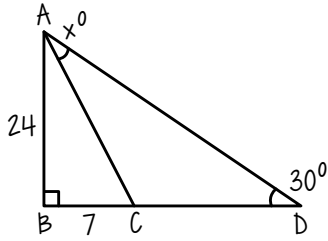
40. Cari nilai bagi:
- $\cos x$
  - $\sin 2x$
  - $\tan 2x$
  - $x$



selesaikan setiap yang berikut

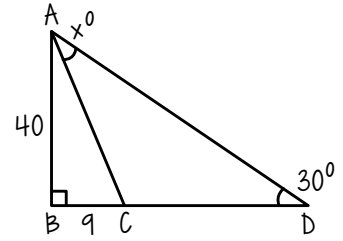
41. Cari nilai bagi:

- a)  $\sin x$
- b)  $\cos x$
- c)  $\tan x$
- d) AC
- e) AD

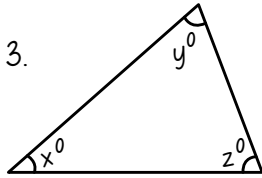


42. Cari nilai bagi:

- a)  $\sin x$
- b)  $\cos x$
- c)  $\tan x$
- d) AC
- e) AD



43. Diberi  $\tan x = 1$ ,  $\tan y = 2$ .  
Tunjukkan bahawa  $\tan z = 3$ .



44. Tunjukkan bahawa luas segitiga  
diberi oleh rumus berikut:

$$L = \frac{b^2 \sin x \sin z}{2 \sin(x + z)}$$

