

## Pembahasan latihan paket 2

- $\cos 1200^\circ = \cos (120^\circ + 3600^\circ)$   
 $= \cos 120^\circ$   
 $= -\cos 60^\circ$   
 $= -1/2$  (C)
- Identitas trigonometri  $= 1 + \tan^2 x = \sec^2 x$   
 $= \tan^2 x = \sec^2 x - 1$   
 $\tan^2 x / 1 + \sec x = 1$   
 $\sec^2 x - 1 / 1 + \sec x = 1$   
 $(\sec x + 1)(\sec x - 1) / 1 + \sec x = 1$   
 $\sec x - 1 = 1$   
 $\sec x = 2$   
 $1 / \cos x = 2$   
 $\cos x = 1/2$   
 $x = 60^\circ$  (D)
- $\cos 5\pi / 6 = \cos (5/6 \times 180^\circ)$   
 $= \cos 150^\circ$   
 $= -\cos 30^\circ$   
 $= -1/2 \sqrt{3}$  (D)
- $2 \cos(x + \pi/4) = \cos(x - \pi/4)$   
 $2(\cos x \cos \pi/4 - \sin x \sin \pi/4) = \cos x \cos \pi/4 + \sin x \sin \pi/4$   
 $2 \cos x \cdot \frac{1}{2} \sqrt{2} - \sin x \cdot \frac{1}{2} \sqrt{2} = \cos x \cdot \frac{1}{2} \sqrt{2} + \sin x \cdot \frac{1}{2} \sqrt{2}$   
 $\cos x - \sin x = \cos x + \sin x$   
 $\cos x = 3 \sin x$   
 $\tan x = 1/3$  (D)
- $(p+1) \cos x + p \sin x = 2p - 1$   $a = p+1$   
 $b = p$  dan  $c = 2p - 1$   
 dapat diselesaikan :  
 $c^2 \leq a^2 + b^2$   
 $4p^2 - 4p + 1 \leq p^2 + 2p + 1 + p^2$   
 $2p^2 - 6p \leq 0$   
 $2p(p-3) \leq 0$   
 Jadi  $0 \leq p \leq 3$  (A)
- $Y = \sqrt{13} \cos 3x + \sqrt{3} \sin 3x + 8$  ,  $a = -\sqrt{3}$  ,  $b = \sqrt{3}$  dan  $c = 8$   
 $Y_{\text{maks}} = \sqrt{a^2 + b^2} + c$   
 $= \sqrt{13 + 3} + 8$   
 $= 4 + 8$   
 $= 12$  (A)
- Aturan sinus =  
 $3 / \sin A = 4 / \sin B$   
 $3 / \frac{1}{2} = 4 / \sin B$   
 $\sin B = 2/3$   
 $C = \cos B = \sqrt{5}/3$  (B)
- Aturan cosinus =

$$7^2 = 8^2 + 9^2 - 2 \cdot 8 \cdot 9 \cos A$$

$$\cos A = 2/3$$

$$\sin A = \sqrt{5}/3 = 1/3 \sqrt{5} \text{ (B)}$$

9. Luas segi enam = 6 luas segi enam sama sisi dengan sisi 10

$$= 6 \cdot \frac{1}{2} \cdot 10 \cdot 10 \sin 60^\circ$$

$$= 300 \cdot \frac{1}{2} \sqrt{3}$$

$$= 150 \cdot \sqrt{3} \text{ (D)}$$

10. Gunakan grafik  $\sin 2x < \frac{1}{2}$

Dari grafik didapat:

$$0^\circ < x < 15^\circ \text{ atau } 75^\circ < x < 195^\circ \text{ (B)}$$

11. Persamaan umum grafik

$$Y = a \cos n(x - \alpha),$$

$$a = 2 = \text{maksimum}$$

$$360/n = 180^\circ, n = 2$$

$$\text{Alpha pergeseran ke kanan} = 15^\circ$$

$$Y = 2 \cos 2(x - 15^\circ)$$

$$= 2 \cos (2x - 30^\circ) \text{ (B)}$$

12. Segitiga siku-siku dengan alas 3 dan tinggi 4

$$\cos^2 = 8/10$$

$$1 + \cos 2A / 2 = 8/10$$

$$\cos 2A = 3/5$$

$$\text{Tg } 2A = 4/3 \text{ (A)}$$

13.  $\sin x > \cos 2x$

$$\sin x > 1 - 2 \sin^2 x$$

$$2 \sin^2 x + \sin x - 1 > 0$$

$$(2 \sin x - 1)(\sin x + 1) > 0$$

$$\sin x < -1 \text{ atau } \sin x > 1/2 \text{ (tidak dipakai)}$$

$$\sin x > 1/2$$

$$30^\circ < x < 150^\circ \text{ (D)}$$

14.  $\sin 105^\circ \cos 15^\circ + 2 \cos 75^\circ \sin 45^\circ$

$$= \frac{1}{2} \sin 120^\circ + \frac{1}{2} \sin 90^\circ + \sin 120^\circ - \sin 30^\circ$$

$$= \frac{1}{2} \cdot \frac{1}{2} \sqrt{3} + \frac{1}{2} \cdot 1 + \frac{1}{2} \cdot \sqrt{3} - \frac{1}{2}$$

$$= \frac{3}{4} \sqrt{3} \text{ (D)}$$

15.  $\sin(3x - 20)^\circ + \cos(x + 10)^\circ$

$$= \sin(3x - 20)^\circ + \sin(90 - x - 10)^\circ$$

$$= \sin(3x - 20)^\circ + \sin(80 - x)^\circ$$

$$= 2 \sin(x + 30)^\circ \cdot \cos(2x - 50)^\circ \text{ (C)}$$

16. Pada setiap segitiga berlaku:

$$a^2 = b^2 + c^2 - 2bc \cos A, \text{ dari soal}$$

$$b^2 + c^2 + bc \sqrt{3} = b^2 + c^2 - 2bc \cos A$$

$$\sqrt{3} = -2 \cos A$$

$$\cos A = -1/2 \sqrt{3}$$

$$A = 150^\circ \text{ (A)}$$

17.  $\cos 2x^\circ + 7 \sin x^\circ - 4 = 0$

$$1 - 2 \sin^2 x + 7 \sin x - 4 = 0$$

$$2 \sin^2 x - 7 \sin x + 3 = 0$$

$$(2 \sin^2 x - 1)(\sin x - 3) = 0$$

$$\sin x = \frac{1}{2}$$

$$X = 30^\circ, 150^\circ \text{ (C)}$$

$$18. \cos 195^\circ + \cos 105^\circ$$

$$= 2 \cos (195+105)/2 \cdot \cos (195-105)/2$$

$$= 2 \cos 150^\circ \cdot \cos 45^\circ$$

$$= 2 \cdot \frac{1}{2} \sqrt{3} - \frac{1}{2} \sqrt{2}$$

$$= -\frac{1}{2} \sqrt{6} \text{ (D)}$$

$$19. \text{ Rumus praktis :}$$

$$\text{Tg } n = \text{tg } [180^\circ - (s+e)]$$

$$= -\text{tg } (s+e)$$

Sehingga :

$$= -[\text{tg } s + \text{tg } e / 1 - \text{tg } s \cdot \text{tg } e]$$

$$= -[3/4 + 4/3 / 1 - 3/4 \cdot 4/3]$$

$$= \text{tg } n = \sim \text{ atau } n = 90^\circ$$

$$\sin n = 90^\circ = 1 \quad \text{(A)}$$

$$20. A = 2$$

Kurva fungsi sinus yang bergeser ke kiri sejauh  $\phi/6$  sehingga persamaan kurva adalah:

$$Y = A \sin (x + \phi/6)$$

$$= 2 \sin (x + \phi/6) \quad \text{(C)}$$