Pembahasan latihan paket 2

1. Cos 1200°= cos (120° +3600°)
   = cos 120°
   = - cos 60°
   = -1/2

2. Identitas trigonometri = 1+tan^2 x = sec^2
   = 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 = ½
   X= 60°

3. Cos 5 phi / 6 = cos (5/6 x 180°)
   = cos 150°
   = -cos 30°
   = -1/2 V3

4. 2 cos(x + phi/4) = cos (x-phi/4)
   2(cos x c0s phi/4 – sin x sin phi/4) = cos x cos phi/4 + sin x sin phi/4
   2cos . ½ V2 . sin x . ½ V2 = cos x . 1.2 V2 + sin x . ½ V2
   Cos x – 2sin x = cos x + sin x
   Cos x = 3 sin x
   Tan x = 1/3

5. (p+1) cos x + p sin x = 2p -1 a = p+1
   b = p dan c = 2p -1
   dapat diselesaikan :
   c^2 <= a^2 + b^2
   4p^2 – 4p + 1 <= p^2 + 2p + 1 + p^2
   2p^2 – 6p <= 0
   2p(p-3) <= 0
   Jadi 0 <= p <= 3

6. Y = V13 cos 3x + V3 sin 3x + 8 , a = -V3   , b = V3 dan c = 8
   Y maks = Va^2 + Vb^2 + c
   = V13 + V3 + 8
   = 4+8
   = 12

7. Aturan sinus =
   3 / sin A = 4 / sin B
   3 / ½ = 4 / sin B
   Sin B = 2/3
   C = cos B = V5/3

8. Aturan cosinus =

$7^2 = 8^2 + 9^2 - 2.8.9 \cos A$

Cos A = 2/3

Sin A = V5/3 = 1/3 V5

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

= 6 . ½ . 10 . 10 sin 60°

= 300 . ½ V3

= 150 . V3

10. Gunakan grafik sin 2x < ½

Dari grafik didapat:

0° < x < 15° atau 75° < x < 195°

11. Persamaan umum grafik

Y = a cos n (x-alpha) ,

a = 2 = maksimum

360/n = 180° , n = 2

Alpha pergeseran ke kanan = 15°

Y = 2 cos 2 (x-15°)

= 2 cos (2x – 30°)

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

Cos^2 = 8/10

1+cos 2A / 2 = 8/10

Cos 2A = 3/5

Tg 2A = 4/3

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 atau sin x > 1/2 (tidak dipakai)

Sin x > ½

30° < x < 150°

14. Sin 105° cos 15° + 2 cos 75° sin 45°

= ½ sin 120° + ½ sin 90° + sin 120° - sin 30°

= ½ . ½ V3 + ½ . 1 + ½ . V3 – ½

= ¾ V3

15. Sin(3x – 20)°+ cos (x+10)°

= sin(3x - 20)°+ sin (90-x-10)°

= sin(3x – 20)° + sin (80-x)°

= 2 sin (x+30)° . cos (2x – 50)°

16. Pada setiap segitiga berlaku:

a^2 = b^2 + c^2 – 2bc cos A, dari soal

b^2 + c^2 + bc V3 = b^2 + c^2 – 2bc cos A

V3 = -2 cos A

Cos A = -1/2 V3

A = 150°

17. Cos 2x° + 7 sin x° - 4 = 0

$1 - 2 \sin^2 x + 7 \sin x° - 4 = 0$

$2 \sin^2 x° - 7 \sin x° + 3 = 0$

$(2 \sin^2 x° - 1)(\sin x° - 3) = 0$

$\sin x° = \frac{1}{2}$

$X = 30°, 150°$

18. $\cos 195° + \cos 105°$

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

$= 2 \cos 150° . \cos 45°$

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

$= -1/2 \sqrt{6}$

19. Rumus praktis :

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

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

Sehingga :

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

$= - [3/4 + 4/3 / 1 - 3/4 . 4/3]$

$= \text{tg } n = \sim \text{atau } n = 90°$

$\sin n = 90° = 1$

20. $A = 2$

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

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

$\quad = 2 \sin (x + phi/6)$