

KUNCI PENILAIAN AKHIR SEMESTER GANJIL TAHUN PELAJARAN 2021/2022

MATA PELAJARAN : *MATEMATIKA*
KELAS / PROGRAM : *XI / PEMINATAN*
WAKTU : *90 Menit*

I. PILIHAN GANDA

Nomor	Kunci	Nomor	Kunci	Nomor	Kunci
1	B	11	B	21	E
2	E	12	C	22	C
3	D	13	B	23	C
4	A	14	B	24	E
5	E	15	D	25	B
6	C	16	A	26	E
7	E	17	B	27	A
8	A	18	C	28	E
9	A	19	A	29	D
10	C	20	D	30	D

II. URAIAN

- Penyelesaian persamaan $\tan 2x = \tan 70^\circ$ untuk $0^\circ \leq x \leq 360^\circ$.
 $\tan 2x = \tan 70^\circ$
 $2x = 70^\circ + k.180^\circ$
 $x = 35^\circ + k.90^\circ$
bila $k=0$ maka $x = 35^\circ$
bila $k=1$ maka $x = 35^\circ + 90^\circ = 125^\circ$
bila $k=2$ maka $x = 35^\circ + 180^\circ = 215^\circ$
bila $k=3$ maka $x = 35^\circ + 270^\circ = 305^\circ$
- Penyelesaian persamaan $\sin 3x = -\frac{1}{2}\sqrt{3}$ untuk $0^\circ \leq x \leq 360^\circ$
 $\sin 3x = -\frac{1}{2}\sqrt{3}$
 $\sin 3x = \sin 240^\circ$
 $3x = 240^\circ + k.360^\circ$
 $x = 80^\circ + k.120^\circ$
bila $k = 0$ maka $x = 80^\circ$
bila $k = 1$ maka $x = 80^\circ + 120^\circ = 200^\circ$
bila $k = 2$ maka $x = 80^\circ + 240^\circ = 320^\circ$

$$\sin 3x = -\frac{1}{2}\sqrt{3}$$

$$\sin 3x = \sin 300^\circ$$

$$3x = 300^\circ + k \cdot 360^\circ$$

$$x = 100^\circ + k \cdot 120^\circ$$

$$\text{bila } k = 0 \text{ maka } x = 100^\circ$$

$$\text{bila } k = 1 \text{ maka } x = 100^\circ + 120^\circ = 220^\circ$$

$$\text{bila } k = 2 \text{ maka } x = 100^\circ + 240^\circ = 340^\circ$$

3. Penyelesaian persamaan $\sin^2 x - 2\sin x - 3 = 0$, untuk $0^\circ \leq x \leq 360^\circ$

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

$$(\sin x - 3)(\sin x + 1) = 0$$

$$\sin x - 3 = 0 \quad \text{atau} \quad \sin x + 1 = 0$$

$$\sin x = 3 \text{ (tidak mungkin)} \quad \sin x = -1$$

$$\sin x = -1$$

$$\sin x = \sin 270^\circ$$

$$x = 270^\circ$$

4. Diketahui $\sin A = p$, untuk A lancip $\sin 2A$

$$y = p$$

$$r = 1$$

$$x = \sqrt{r^2 - y^2}$$

$$x = \sqrt{1^2 - p^2}$$

$$\cos A = \sqrt{1^2 - p^2}$$

$$\sin 2A = 2 \cdot \sin A \cdot \cos A$$

$$\sin 2A = 2p\sqrt{1^2 - p^2}$$

5. Menentukan nilai $2 \sin 97,5^\circ \sin 52,5^\circ$ adalah

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

$$2 \sin 97,5^\circ \sin 52,5^\circ = \cos 45^\circ - \cos 150^\circ$$

$$2 \sin 97,5^\circ \sin 52,5^\circ = \frac{1}{2}\sqrt{2} - \left(-\frac{1}{2}\sqrt{3}\right)$$

$$2 \sin 97,5^\circ \sin 52,5^\circ = \frac{1}{2}\sqrt{2} + \frac{1}{2}\sqrt{3}$$

$$2 \sin 97,5^\circ \sin 52,5^\circ = \frac{1}{2}(\sqrt{2} + \sqrt{3})$$

III. NORMA PENILAIAN

$$\text{Skor pilihan ganda} = 30 \times 2,5 = 75$$

$$\text{Skor uraian} = 5 \times 5 = 25$$

$$\text{Nilai} = \text{skor PG} + \text{skor uraian}$$