Mata Kuliah.: Matematika Tgl : 09/12/2024 Hal. : 1 /

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TGL : 09/12/2024
TTD :

1. $\frac{\sin 2\alpha}{1+\cos 2\alpha} = \frac{2\sin\alpha \cdot \cos\alpha}{1+(2\cos^2\alpha - 1)}$

$= \frac{2\sin\alpha \cdot \cos\alpha}{2\cos^2\alpha}$

$= \frac{\sin\alpha}{\cos\alpha} = \tan\alpha$

2. $\frac{\sec\alpha - \cos\alpha}{2\sec^3\alpha - \sec\alpha} = \frac{\frac{1}{\cos\alpha} - \cos\alpha}{\frac{2}{\cos^3\alpha} - \cos\alpha} \times \frac{\cos\alpha}{\cos\alpha}$

$= \frac{1-\cos^2\alpha}{2/\cos^2\alpha - 1}$

$= \frac{\sin^2\alpha}{2\sec^2\alpha - 1}$

Mare $\sin\alpha = -\frac{4}{5}$ $= \frac{(-4/5)^2}{2\sec^2\alpha - 1}$

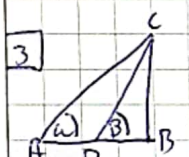
$= \frac{(-4/5)^2}{2(5/3)^2 - 1}$

$= \frac{16/25}{50/9 - 1} = \frac{144}{1025}$

$\cos\alpha = \sqrt{1-\sin^2\alpha}$
$= \sqrt{1-\left(\frac{-4}{5}\right)^2}$
$= \sqrt{\frac{9}{25}}$
$= \pm\frac{3}{5}$

$\sec\alpha = \frac{1}{\cos\alpha}$
$= \frac{1}{3/5} = \frac{5}{3}$

3.



$\tan\alpha = \frac{BC}{AB}$ $\quad AB = AD + DB = 1 + DB$ $\quad (DB+1)\tan\alpha = DB\tan\beta$

$\tan\beta = \frac{BC}{BD}$ $\quad AB\tan\alpha = BD\tan\beta$ $\quad DB\tan\alpha + \tan\alpha = DB\tan\beta$

$\tan\alpha = DB\tan\beta - DB\tan\alpha$

$\tan\alpha = DB(\tan\beta - \tan\alpha)$

$DB = \frac{\tan\alpha}{\tan\beta - \tan\alpha}$

4. $\tan\frac{1}{2}(\alpha+\beta) = \tan\frac{1}{2}\gamma$

$\frac{\alpha+\beta}{2} = \frac{\gamma}{2}$ $\times 2$

$\alpha+\beta = \gamma$

$\alpha+\beta(\alpha+\beta) = 180^0$

$2(\alpha+\beta) = 180^0$

$\alpha+\beta = 90^0$

$\alpha+\beta = \gamma \rightarrow \gamma = 90^0$

derajat $\rightarrow \alpha+\beta+\gamma = 180^0$

radian $\rightarrow \alpha+\beta+\gamma = 2 \cdot \frac{\pi}{2} = \pi$ radian

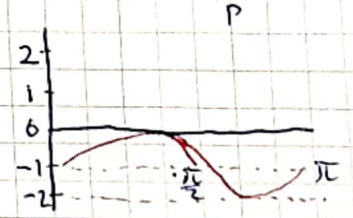
5. $\sin x \cdot \cos x = \frac{1}{2}\sin 2x$

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

$= \sin 2\gamma - 1$

$\max = 1 \quad \min = -1$ $\quad\sim\quad$ $\max = 0 \quad \min = -2$

Periode $B = \frac{2\pi}{P} \rightarrow P = \frac{2\pi}{B} \rightarrow \frac{2\pi}{2} = \pi$



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