LEMBAR KERJA PESERTA DIDIK 2

Turunan Fungsi Trigonometri

A. Perhatikan kembali materi dalam video ini



B. kerjakan soal dibawah ini!

1. Tentukan turunan fungsi trigonometri berikut.

$f(x) = 2x\ cos\ x - x^3$

Penyelesaian:

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

Untuk $2x.\cos x$ dimisalkan:

$u = 2x \rightarrow u' = 2$

$v = \cos x \rightarrow v' =$ ____

Jadi,

$y' = 2.$ ____ $+ 2x.$ ____

$y' =$ ____

$sin\frac{\pi}{3}.cos^2\frac{\pi}{3}$ | $-\sin x$ | $\frac{1}{2}\sqrt{3}-4$

$-12.(\frac{1}{2}\sqrt{3}).(\frac{1}{2})^2$ | Cos x | $\frac{1}{2}\sqrt{3}-1$

$-\frac{2}{3}\sqrt{3}$ | $(\frac{1}{2}\sqrt{2})^2$ | $(sin(\frac{1}{4}\pi)^2$ | $3cos^2\left(\frac{1}{4}\pi\right)$

sec^2x | $2cos\ x - 2xsin\ x - 3x^2$

$4.3\ cos^2x$ | $(-\sin x) - 3x^2$ | $sin\frac{\pi}{3} - sec^2$

$3.\ cos\ x.(cosx) + 3\sin x\ (-\sin x)$

0

Math is Fun **Good Luck**

LIVEWORKSHEETS

2. Tentukan $f'(x)$ dan nilai $f'(x)$ dari fungsi $f(x) = 3x - cos\ x + tan\ x$ untuk $x = \frac{\pi}{3}$.

Penyelesaian:

$f(x) = 3x - cos\ x + tan\ x$

$f'(x) = 3 + sin\ x -$ ☐

$f'\left(\frac{\pi}{3}\right) = 3 +$ ☐

$= 3 +$ ☐

$=$ ☐

3. Jika $f(x) = 4\ cos^3 x$, maka tentukan nilai $f'(x)$ untuk $x = \frac{\pi}{3}$

Penyelesaian

$f(x) = 4\ cos^3 x$

$f'(x) =$ ☐ $.(-sinx)$

$f'(x) = -12.sinx.cos^2 x$

$f'\left(\frac{\pi}{3}\right) = -12.$ ☐

$f'\left(\frac{\pi}{3}\right) =$ ☐

$f'\left(\frac{\pi}{3}\right) =$ ☐

$sin\frac{\pi}{3}.cos^2\frac{\pi}{3}$ | $-\sin x$ | $\frac{1}{2}\sqrt{3} - 4$

$-12.(\frac{1}{2}\sqrt{3}).(\frac{1}{2})^2$ | Cos x | $\frac{1}{2}\sqrt{3} - 1$

$-\frac{2}{3}\sqrt{3}$ | $(\frac{1}{2}\sqrt{2})^2$ | $(sin(\frac{1}{4}\pi)^2$ | $3cos^2\left(\frac{1}{4}\pi\right)$

$sec^2 x$ | $2cos\ x - 2xsin\ x - 3x^2$

$4.3\ cos^2 x$ | $(-\sin x) - 3x^2$ | $sin\frac{\pi}{3} - sec^2$

0 | $3.cos\ x.(cosx) + 3\sin x\ (-\sin x)$

LIVEWORKSHEETS

4. Jika $f(x) = 3.sinx.cosx$, maka tentukan nilai $f'\left(\frac{1}{4}\pi\right)$

Penyelesaian

U = 3 sin x

U' = 3 cos x

V = cos x

V' = -sin x

$f'(x) = U'V + UV'$

$f(x) = 3.sinx.cosx$

$f'(x) =$ [ ]

$f'(x) = 3cos^2 x - 3sin^2 x$

Subsitusikan $x = \frac{1}{4}\pi$, maka

$f'\left(\frac{1}{4}\pi\right) =$ [ ] $- 3sin^2(\frac{1}{4}\pi)$

$f'\left(\frac{1}{4}\pi\right) = 3\left[(\cos\left(\frac{1}{4}\pi\right)^2 -\right.$ [ ] $\left.\right]$

$f'\left(\frac{1}{4}\pi\right) = 3\left[\right.$ [ ] $\left.- (\frac{1}{2}\sqrt{2})^2\right]$

$f'\left(\frac{1}{4}\pi\right) =$ [ ]

$-\sin x$

$\frac{1}{2}\sqrt{3} - 4$

Cos x

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

$(sin(\frac{1}{4}\pi)^2$

$3cos^2\left(\frac{1}{4}\pi\right)$

$2cos\,x - 2xsin\,x - 3x^2$

$(-\sin x) - 3x^2$

$sin\frac{\pi}{3} - sec^2$

$(\frac{1}{2}\sqrt{2})^2$

0

$sin\frac{\pi}{3}.cos^2\frac{\pi}{3}$

$-12.(\frac{1}{2}\sqrt{3}).(\frac{1}{2})^2$

$-\frac{2}{3}\sqrt{3}$

$sec^2 x$

$4.3\,cos^2 x$

$3.cos\,x.(cosx) + 3\sin x\ (-\sin x)$

Math is Fun **Good Luck**

LIVEWORKSHEETS