

Turunan Trigonometri

01-12-02

Part I

Mudah

1. Jika $r = \sqrt{\sin\alpha}$, maka $\frac{dr}{d\alpha} = \dots$

- (a) $\frac{1}{2\sqrt{\sin\alpha}}$
- (b) $\frac{\cos\alpha}{2\sin\alpha}$
- (c) $\frac{\cos\alpha}{2\sqrt{\sin\alpha}}$
- (d) $\frac{-\sin\alpha}{2\cos\alpha}$
- (e) $\frac{2\cos\alpha}{\sqrt{\sin\alpha}}$

2. Turunan pertama dari $y = \cos^4x$ adalah...

- (a) $\frac{1}{4}\cos^3x$
- (b) $-\frac{1}{4} \cdot \cos^3x$
- (c) $-4 \cdot \cos^3x$
- (d) $-4\cos^3x \cdot \sin x$
- (e) $4 \cdot \cos^3x \cdot \sin x$

3. Turunan pertama dari fungsi $f(x) = 5 \cdot \sin x \cdot \cos x$ adalah...

- (a) $5 \cdot \sin 2x$
- (b) $5 \cdot \cos 2x$
- (c) $5 \cdot \sin^2x \cdot \cos x$
- (d) $5 \cdot \sin x \cdot \cos 2x$
- (e) $5 \cdot \sin 2x \cdot \cos x$

4. Turunan dari $y = \frac{\sin 2x}{1 + \cos 2x} = \dots$

- (a) $\sec x \cdot \tan x$
- (b) $\operatorname{cosec}^2 x$
- (c) $\frac{3 \cdot \sin 2x + 2 \cdot \sin^2 2x}{(1 + \cos 2x)^2}$
- (d) $\sec^2 x$
- (e) $\cos^2 x$

5. Jika $f(x) = -(\cos^2x - \sin^2x)$, maka $f'(x)$ adalah...

- (a) $2(\sin x + \cos x)$
- (b) $2(\cos x - \sin x)$
- (c) $\sin x \cdot \cos x$
- (d) $2 \cdot \sin x \cdot \cos x$
- (e) $4 \cdot \sin x \cdot \cos x$

Part II

Sedang

1. Turunan pertama dari fungsi $f(x) = (3x - 2) \cdot \sin(2x + 1)$ adalah...

- (a) $3 \cdot \sin(2x + 1) + (6x - 4) \cdot \cos(2x + 1)$
- (b) $3 \cdot \sin(2x + 1) - (6x - 4) \cdot \cos(2x + 1)$
- (c) $3 \cdot \sin(2x + 1) + (3x - 2) \cdot \cos(2x + 1)$
- (d) $3x \cdot \sin(2x + 1) + (6x - 4) \cdot \cos(2x + 1)$
- (e) $3x \cdot \sin(2x + 1) - (6x - 4) \cdot \cos(2x + 1)$

2. Jika $f(x) = x \cdot \cos x$, maka $f'(x + \frac{\pi}{2}) = \dots$

- (a) $-\sin x - x \cdot \cos x + \frac{\pi}{2} \cos x$
- (b) $-\sin x - x \cdot \cos x - \frac{\pi}{2} \cos x$
- (c) $-\sin x + x \cos x - \frac{\pi}{2} \cos x$
- (d) $\sin x + x \cdot \cos x + \frac{\pi}{2} \cos x$
- (e) $\cos x + x \sin x + \frac{\pi}{2} \sin x$

3. Jika $f(x) = a \cdot \tan x + bx$, $f'(\frac{\pi}{4}) = 3$, dan $f'(\frac{\pi}{3}) = 9$, nilai $(a + b) = \dots$

- (a) 0
- (b) 1
- (c) $\frac{\pi}{2}$
- (d) 2
- (e) π

4. Jika $f(x) = e^{2x} \cdot \sin x$, maka $f'(0) = \dots$

- (a) -1
- (b) 0
- (c) -2
- (d) 1
- (e) 2

5. Diketahui $f(x) = \frac{\sin^2 x}{1 + \cos^2 x}$, maka nilai $f'(\frac{\pi}{4}) = \dots$

- (a) $\frac{1}{9}$
- (b) $\frac{4}{3}$
- (c) 1
- (d) 2
- (e) $\frac{8}{9}$

Part III

Sukar

- Diketahui $\cos 3y = \tan 2x$, nilai $y' = \dots$
 - $\frac{\tan 2x}{\cos 3y}$
 - $2x \cdot \frac{\tan 2x}{\cos 3y}$
 - $-\frac{2 \cdot \sec^2 2x}{3 \cdot \sin 3y}$
 - $\frac{\sec^2 2x}{\sin 3y}$
 - $-\frac{2 \cdot \sec^2 2x}{\cos 3y}$
- Jika $\cos^2(x + y) = b$, maka $y' = \dots$
 - 2
 - 1
 - 0
 - 1
 - tak dapat ditentukan
- Turunan pertama dari $f(x) = \ln\left(\frac{1+\sin x}{\cos x}\right)$ adalah...
 - $\sin x$
 - $\cos x$
 - $\tan x$
 - $\sec x$
 - $\operatorname{cosec} x$
- Jika $f(x) = \sin^2 x$, maka $\lim_{k \rightarrow \infty} k \cdot \left\{ f'\left(x + \frac{1}{k}\right) - f'(x) \right\} = \dots$
 - $\sin 2x$
 - $2 \cdot \sin 2x$
 - $\cos 2x$
 - $2 \cdot \cos 2x$
 - $\sin 2x - \cos x$
- Jika diketahui $\cos xy - \sin xy = 2x - y^2$, maka $y' = \dots$
 - $\frac{2+y \cdot \sin xy + y \cdot \cos xy}{2y-x \cdot \sin xy - x \cdot \cos xy}$
 - $\frac{y \cdot \sin xy + y \cdot \cos xy}{2y-x \cdot \sin xy - x \cdot \cos xy}$
 - $\frac{2+y \cdot \sin xy + y \cdot \cos xy}{2y+x \cdot \sin xy + x \cdot \cos xy}$
 - $\frac{2-y \cdot \sin xy - y \cdot \cos xy}{2y+x \cdot \sin xy + x \cdot \cos xy}$
 - $\frac{2+y \cdot \sin xy + y \cdot \cos xy}{y+x \cdot \sin xy - x \cdot \cos xy}$