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XII MIPA 3

Latihan Soal Turunan Kedua Fungsi Trigonometri

Tentukan turunan kedua dari fungsi trigonometri dibawah ini :

1. $f(x) = 3\sin 2x - 2\cos 3x$

$\Rightarrow f(x) = 3\sin 2x - 2\cos 3x$
$f'(x) = 3 \cdot 2 \cos 2x - 2 \cdot 3 (-\sin 3x)$
$f'(x) = 6\cos 2x + 6\sin 3x$

~~2. $f(x) = x \cos x$~~
$\Rightarrow f''(x) = 6(-\sin 2x) - 2 + 6(\cos 3x) \cdot 3$
$f''(x) = -12\sin 2x + 18\cos 3x$

2. $f(x) = x \cos x$
$f'(x) = \cos x - x\sin x$
$f''(x) = -\sin x - (\sin x + x\cos x)$
$\quad\quad = -2\sin x - x\cos x$

3. $f(x) = \sin(x + 20°)$
$f'(x) = \cos(x + 20°)$
$f''(x) = -\sin(x + 20°)$

4.1 $f(x) = \sin^2(2x+3)$

$= f(x) = (\sin(2x+3))^{2-1}$
$f'(x) = 2(\sin(2x+3))$
$f'(x) = 2(\sin(2x+3)) \cdot \cos(2x+3) \cdot (2+0)$
$\quad = 2 \cdot 2\sin(2x+3) \cdot \cos(2x+3)$
$\quad = 2 \cdot \sin 2(2x+3)$
$\quad = 2\sin(4x+6)$

~~$f''(x) = 2\cos$~~
$f''(x) = 2 \cdot 4\cos(4x+6)$
$f''(x) = 8\cos(4x+6)$