

**Kumpulan Contoh Soal Matematika Turunan**  
**Contoh 1 soal turunan:**

Tentukan turunan dari  $y = 4x^3 + 6x^2 - 8x + 7$

Jawab:

$$y = 4x^3 + 6x^2 - 8x + 7$$

$$y' = 12x^2 + 12x - 8$$

**Contoh 2 soal turunan:**

Tentukan turunan dari  $f(x) = 8 \sqrt[5]{\sin^3 (6x - 8)}$

Jawab:

$$f(x) = 8 \sqrt[5]{\sin^3 (6x - 8)}$$

$$f(x) = 8 \sin^{3/5} (6x - 8)$$

$$f'(x) = 8(3/5)(6) \sin^{(-2/5)} (6x - 8) \cos (6x - 8)$$

$$f'(x) = (144/5) \cos (6x - 8) / \{\sin^{2/5} (6x - 8)\}$$

$$f'(x) = (144/5) \cos (6x - 8) \sin^{3/5} (6x - 8) / \{\sin^{2/5} (6x - 8) \sin^{3/5} (6x - 8)\}$$

$$f'(x) = (144/5) \cos (6x - 8) \sin^{3/5} (6x - 8) / \{\sin (6x - 8)\}$$

$$f'(x) = (144/5) \cot (6x - 8) \sin^{3/5} (6x - 8)$$

$$f'(x) = (144/5) \cot (6x - 8) \sqrt[5]{\sin^3 (6x - 8)}$$

Cara cepat soal ini hanya ada di NICEinstitute.

**Contoh 3 soal turunan:**

Tentukan turunan dari  $f(x) = 2 \sin 5x$

Jawab:

$$f(x) = 2 \sin 5x$$

$$f'(x) = 2(5) \cos 5x$$

$$f'(x) = 10 \cos 5x$$

**Contoh 4 soal turunan:**

Turunan dari fungsi  $f$  yang rumusnya  $f(x) = x^2 \cos 2x$  adalah ....

Jawab:

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

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

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

**Contoh 5:**

Diketahui  $f(x) = \sin^3(3 - 2x)$ . Turunan pertama fungsi  $f'(x) = \dots$

Jawab:

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

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

$$f'(x) = 3 \cdot (-2) \cdot \frac{1}{2} \cdot 2 \cdot \sin(3 - 2x) \cdot \sin(3 - 2x) \cdot \cos(3 - 2x)$$

$$f'(x) = -3 \cdot \sin(3 - 2x) \cdot \sin 2(3 - 2x); \text{ ingat: } \sin 2A = 2 \cdot \sin A \cdot \cos A$$

$$f'(x) = -3 \cdot \sin(3 - 2x) \cdot \sin(6 - 4x)$$

**Contoh 6:**

Jika  $F(x) = (x^2 + 6)/\sqrt{x}$  maka  $F'(x) = \dots$

Jawab:

$$F(x) = (x^2 + 6)/\sqrt{x}$$

$$F(x) = x\sqrt{x} + 6/\sqrt{x}$$

$$F(x) = x^{3/2} + 6x^{-1/2}$$

$$F(x) = (3/2)x^{1/2} + 6(-1/2)x^{-3/2}$$

$$F(x) = (3/2)\sqrt{x} - 3/(x\sqrt{x})$$