Tugas

A. tentukan turunan dari fungsi berikut

1. $F(x) = 3x^{\frac{1}{2}}$
2. $F(x) = 6x^{\frac{3}{2}}$
3. $F(x) = \frac{1}{2} x^{\frac{3}{2}}$

B. tentukan turunan dari fungsi berikut nyatakan hasil akhir dalam bentuk akar

1. $F(x) = 4\sqrt{x}$
2. $F(x) = 6\sqrt{x^3}$
3. $F(x) = 12\sqrt[3]{x^4}$

Jawaban.

A. 1. $F(x) = 3x^{\frac{1}{2}}$

$= F'(x) = 3\frac{1}{2} x^{\frac{1}{2}-1} = \frac{3}{2} x^{\frac{-1}{2}}$

2. $F(x) = 6x^{\frac{3}{2}}$

$\therefore F'(x) = 6\frac{3}{2} x^{\frac{3}{2}-1} = \frac{18}{2} x^{\frac{1}{2}} = 9x^{\frac{1}{2}}$

3. $F(x) = \frac{1}{2} x^{\frac{3}{2}}$

$= F(x) = \frac{1}{2} \cdot \frac{3}{2} x^{\frac{2}{2}-1} = \frac{3}{4} x^{\frac{1}{2}}$

B. 1. $F(x) = 4\sqrt{x}$

$= 4x^{\frac{1}{2}}$

$= F'(x) = 4\frac{1}{2} x^{\frac{1}{2}-1}$

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

$= 2\sqrt{x}$

$x-0-2 \quad (x-5) \quad -2-5 \quad -7 \quad 7$

2. $F(x) = 6\sqrt{x^3}$

$F'(x) = \frac{d}{dx}(6\sqrt{x^3})$

$F'(x) = 6 \times \frac{d}{dx}(\sqrt{x^3})$

$F'(x) = 6 \times \frac{d}{dg}(\sqrt{g}) \times \frac{d}{dx}(x^3)$

$F'(x) = 6 \frac{1}{2\sqrt{g}} \times 3x^2$

$F'(x) = 6 = \frac{1}{2\sqrt{x^3}} \times 3x^2$

$F'(x) = \frac{9 \times \sqrt{x}}{x}$

3. $F(x) = (2\sqrt[3]{x^4}$

$= F'(x) = \frac{d}{dx}(12\sqrt[3]{x^4})$

$= F'(x) = \frac{d}{dx}(12 \times \frac{4}{3})$

$= F'(x) = 12 \times \frac{d}{dx}(x \frac{4}{3})$

$= F'(x) = 12 \times \frac{4}{3} \times \frac{1}{3}$

$= F'(x) = 16\sqrt[3]{x}$