$= \frac{24\sqrt{3} - \sqrt{16}}{2}$.

④ Hal 26. no. 3b. turunan kedua dari.

$F(t) = (2t+3)^{3/2}$

$F'(t) = \frac{3}{2}(2t+3)^{1/2} \cdot 2$

$= 3\sqrt{2t+3}$

$F''(t) = 3 \cdot (2t+3)^{-1/2} \cdot \frac{1}{2\sqrt{2t+3}} \cdot 2$

$= \frac{3\sqrt{2t+3}}{2t+3}$.

5. Hal 26. no 3c. turunan kedua dari,

$F(x) = \frac{3}{2x^2} - \frac{5}{\sqrt{x}}$

$F'(x) = \frac{d}{dx}\left(\frac{3}{2x^2}\right) - \frac{d}{dx}\left(\frac{5}{\sqrt{x}}\right)$

$F'(x) = \frac{0(2x^2) - 4x(3)}{(2x^2)^2} - \frac{0(\sqrt{x}) - \frac{1}{2\sqrt{x}}(5)}{(\sqrt{x})^2}$

$= \frac{-12^3}{4x^4} - \frac{5}{2\sqrt{x}}$

$= \frac{-3}{x^3} - \frac{5}{2\sqrt{x}}$

$F''(x) = -\left(\frac{d}{dx}\left(\frac{3}{x^3}\right)\right) + \left(-\left(\frac{d}{dx}\left(\frac{5}{2\sqrt{x}}\right)\right)\right)$

$= \left(\frac{0(x^3) - 3x^2(3)}{(x^3)^2}\right) + \left(-\left(\frac{0(2x^{3/2}) - \frac{3}{2} \cdot 2 \cdot x^{1/2}}{(2x^{3/2})^2}\right)\right)$

$= \frac{9}{x^4} + \frac{15\sqrt{x}}{9x^3}$.

TUGAS TUTORIAL.

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① Hal. 24 . no 1.d . Carilah turunan pertama.

$F(x) = (2x-3)^3 \sin(x+1)$

$F(x) = u.v \rightarrow F'(x) = u'v + uv'$

$u = (2x-3)^3$ $\quad v = \sin(x+1)$

$u' = 3(2x-2)^2 . 2$ $\quad v' = \cos(x+1) . 1$

$u' = 6(2x-3)^2$ $\quad v' = \cos(x+1)$

$F'(x) = u'v + uv'$

$= 6(2x-3)^2 . \sin(x+1) + (2x-3)^3 . \cos(x+1)$

② Hal 25 . no 2b . Carilah turunan berantai.

$y = \sqrt{u}$, $u = 2v(v-5)$, $v = x^2$

$\frac{dy}{dx} = \frac{dy}{du} . \frac{du}{dv} . \frac{dv}{dx}$

$\frac{dy}{dv} = u^{-\frac{1}{2}} = \frac{1}{2\sqrt{u}}$

$\frac{du}{dv} = (2v)(1) + (v-5)(2)$

$= 2v + 2v - 10$

$= (4v - 10)$

$\frac{dv}{dx} = 2x$

$\frac{dy}{dx} = \frac{1}{2\sqrt{v}} . (4v-10) . 2x$

$= \frac{1}{2\sqrt{2v(v-5)}} . (4v-10)\, 2x$

$= \frac{(4x^2-10)(x)}{x\sqrt{2x^2-10}}$

$= \frac{(4x^2-10)(\sqrt{2x-10})}{2x^2-10}$

③ Hal 25 no. 2c . Carilah turunan berantai

Jika $y = 2x^2 - x$ dan $x = \sqrt{3t^2+9}$, $\frac{dy}{dt}$? when $t = \sqrt{3}$.

$\frac{dy}{dt} = \frac{dy}{dx} . \frac{dx}{dt}$

$\frac{dy}{dx} = 4x - 1$

$\frac{dx}{dt} = \frac{(4x-1)(3t)}{\sqrt{3t^2+9}}$

$= \frac{(4(\sqrt{3t^2+9})-1)(3\sqrt{3})}{(\sqrt{3t^2+9})}$

$= \frac{(4\sqrt{18})-1)(3\sqrt{3})}{\sqrt{18}}$

$= \frac{(4 . 3\sqrt{2})-1)(3\sqrt{3})}{3\sqrt{2}}$

$= \frac{(12\sqrt{2})(3\sqrt{3}) - (3\sqrt{2})}{3\sqrt{2}}$

$= \frac{12\sqrt{6} - \sqrt{3} - \sqrt{6}}{2}$