

Exercise 2

Dengan menggunakan rumus dasar turunan dan sifatnya, maka tentukan turunan dari fungsi berikut

1. $f(x) = 2x^{-3}$	$f'(x) = (\dots)2x^{\dots-1} = \dots x^{\dots} = \frac{-6}{x^{\dots}}$
2. $f(x) = \frac{3}{x^5}$	$f(x) = \frac{3}{x^5} = 3x^{\dots}$ $f'(x) = \dots 3x^{\dots-1} = \dots 3x^{\dots} = \frac{\dots}{x^{\dots}}$
3. $f(x) = 4\sqrt{x^3}$	$f(x) = 4x^{\frac{3}{2}}$ $f'(x) = \frac{3}{\dots}4x^{\dots-1} = \dots x^{\dots} = \dots \sqrt{x}$
4. $f(x) = 4x^2 + x^{\frac{2}{3}} - \sqrt{x}$	$f(x) = 4x^2 + x^{\frac{2}{3}} - \sqrt{x} = 4x^2 + x^{\frac{2}{3}} - x^{\frac{1}{2}}$ $f'(x) = \dots x + \frac{2}{3}x^{\dots-1} - \frac{\dots}{\dots}x^{\dots-1}$ $f'(x) = \dots x + \frac{2}{3}x^{\dots} - \frac{\dots}{\dots}x^{\dots} = \dots x + \frac{2}{3x^{\dots}} - \frac{1}{2x^{\dots}} = \dots x + \frac{2}{3\sqrt{x}} - \frac{1}{2\sqrt{x}}$
5. $f(x) = (2x + 1)(3x - 2)$	$u = 2x + 1 \quad u' = \dots \quad v = 3x - 2 \quad v' = \dots$ $f'(x) = u'v + v'u = \dots (3x - 2) + \dots (2x + 1) = \dots x - 4 + 6x - \dots$ $f'(x) = \dots x - \dots$
6. $f(x) = \frac{(x+2)^2}{\sqrt{x}}$	$u = (x + 2)^2 = x^2 + \dots x + 4 \quad u' = \dots x + \dots$ $v = \sqrt{x} = x^{\frac{1}{2}} \quad v' = \frac{\dots}{2}x^{\frac{\dots}{2}-1} = \frac{\dots}{2}x^{\frac{\dots}{2}} = \frac{\dots}{2\sqrt{x}}$ $f'(x) = \frac{u'v - v'u}{v^2} = \frac{(\dots x + \dots)\sqrt{x} - \left(\frac{\dots}{2\sqrt{x}}\right)(x + 2)^2}{(\sqrt{x})^2}$ $f'(x) = \frac{2\sqrt{x}(\dots x + \dots)\sqrt{x} - (x + 2)^2}{2\sqrt{x} \cdot x}$ $f'(x) = \frac{2x(\dots x + \dots) - (x^2 + \dots x + 4)}{2x\sqrt{x}}$ $f'(x) = \frac{4x^2 + \dots x - (x^2 + \dots x + 4)}{2x\sqrt{x}} = \frac{\dots x^2 + \dots x - 4}{2x\sqrt{x}}$