1.) $\int 8u^2 - 6u^2 + 4u - 2 \, du$

Jawab: $\int 8u^2 - \int 6u^2 + \int 4u - \int 2$

$= \dfrac{8u^3}{3} - 2u^3 + 2u^2 - 2u$

$= 8u^3 - 6u^3 + 6u^2 - 6u$

$= 2u^3 + 6u^2 - 6u + C$

2.) $\int \dfrac{3}{2} u^{-2} \, du$

$= \dfrac{3}{2} \int u^{-2}$

$= \dfrac{3}{2}(-u^{-1})$

$= \dfrac{3}{2}\left(-\dfrac{1}{u}\right)$

$\int \dfrac{-3}{2u} \, du + C$

3.) $\int (4u+3)^5 \, du$

Jawab: $t = 4u+3$

$\Rightarrow \int \dfrac{t^5}{4} = \dfrac{1}{4} \int \dfrac{t^6}{6}$

$= \dfrac{1}{4} \cdot \dfrac{(4u+3)^6}{6}$

$= \dfrac{(4u+3)^6}{24} + C$

5.) $\int (3u-2)(u+6) \, du$

$= \int 3u^2 + 18u - 2u - 12$

$= \int 3u^2 + \int 16u - \int 12$

$= u^3 + 8u^2 - 12u + C$

4.) $\int u(u+5)^4 \, du$

Jawab:

$du = \dfrac{1}{1} x \, dt$

$u(u+5)^4 \, dt$

$(u+5-5)(u+5)^4 \, dt$

$(t-5)t^4 \, dt$

$t^5 - 5t^4 \, dt$

$\to \int t^5 - \int 5t^4$

$\dfrac{t^6}{6} - t^5$

$\dfrac{(u+5)^6}{6} - (u+5)^5 + C$

6.) $\int (u-2)(u^2-4u+3)^5 \, du$

$\int (u-2) \cdot \int (u^2-4u+3)^5 \, du$

$\boxed{\dfrac{u^2}{2} - 2u} \cdot \int (u^2)^5 - \int (4u)^5 + \int 3^5$

$\dfrac{u^2}{2} - 2u\left(\dfrac{u^{16}}{16} - \dfrac{2u^6}{3} + 243u\right) + C$

7.) $\int u(\sqrt{4u+1}) \, du$

8.) $\int \left(2u - \dfrac{1}{2u}\right)^2$

$= \int 4u^2 - 2 + \dfrac{1}{4u^2}$

$= \int 4u^2 - \int 2 + \int \dfrac{1}{4u^2}$

$= \dfrac{4u^3}{3} - 2u - \dfrac{1}{4u} + C$

9.) $\int \dfrac{u^2 - \sqrt{u}}{u} \, du$

$= \int \dfrac{u^2 - u^{\frac{1}{2}}}{u} \, du$

$= \int u - \dfrac{1}{u^{\frac{1}{2}}}$

$= \int u - \int \dfrac{1}{u^{\frac{1}{2}}}$

$= \dfrac{u^2}{2} - 2\sqrt{u} + C$

10.) $f'(v) = 9v^2 - 12v + 2$

$f(v) = \int 9v^2 - 12v + 2 \, dv$

$f(v) = 3v^3 - 6v^2 + 2v + C$

$f(-1) = 3(-1)^3 - 6(-1)^2 + 2(-1) + C$

$0 = -3 - 6 - 2 + C$

$\underline{11 = C}$

$f(0) = 3(0)^3 - 6(0)^2 + 2(0) + C$

$\underline{f(0) = 11}$