INTEGRAL LANJUTAN

Soal Latihan 03

C. Menghitung Integral dengan Aturan Substitusi

01. Hasil dari $\int (4x-3)^4 \, dx$ = …..

    A. $\frac{1}{5}(4x-3)^5$ + C
          B. $\frac{1}{8}(4x-3)^5$ + C
          C. $\frac{1}{20}(4x-3)^5$ + C

    D. $\frac{1}{16}(4x-3)^5$ + C
          E. $\frac{1}{24}(4x-3)^5$ + C

02. Hasil dari $\int 6(2x-1)^3 \, dx$ = …..

    A. $\frac{1}{24}(2x-1)^4$ + C
          B. $\frac{3}{2}(2x-1)^4$ + C
          C. $\frac{3}{4}(2x-1)^4$ + C

    D. $\frac{2}{3}(2x-1)^4$ + C
          E. $\frac{1}{2}(2x-1)^4$ + C

03. Hasil dari $\int \frac{2}{(3x-1)^5} \, dx$ = …..

    A. $-\frac{1}{6(3x-1)^4}$ + C
          B. $-\frac{1}{9(3x-1)^4}$ + C
          C. $-\frac{1}{10(3x-1)^4}$ + C

    D. $-\frac{1}{9(3x-1)^6}$ + C
          E. $-\frac{1}{10(3x-1)^6}$ + C

04. Hasil dari $\int \sqrt{(5x-3)^3} \, dx$ = …..

    A. $\frac{1}{40}\sqrt{(5x-3)^5}$ + C
          B. $\frac{1}{20}\sqrt{(5x-3)^5}$ + C
          C. $\frac{2}{25}\sqrt{(5x-3)^5}$ + C

    D. $\frac{1}{10}\sqrt{(5x-3)^4}$ + C
          E. $\frac{1}{20}\sqrt{(5x-3)^4}$ + C

05. Hasil dari $\int 2x^2 (1-4x^3)^4 \, dx$ = …..

    A. $-\frac{1}{24}(1-4x^3)^5$ + C
          B. $-\frac{1}{30}(1-4x^3)^5$ + C
          C. $-\frac{1}{28}(1-4x^3)^5$ + C

    D. $-\frac{1}{20}(1-4x^3)^5$ + C
          E. $-\frac{1}{6}(1-4x^3)^5$ + C

06. Hasil dari $\int \dfrac{(6x-2)}{(9x^2-6x+12)^3}\,dx$ = ...

    A. $-\dfrac{1}{12}(9x^2-6x+12)^{-4}+C$ B. $-\dfrac{1}{6}(9x^2-6x+12)^{-2}+C$

    C. $-\dfrac{1}{4}(6x-2)^{-2}+C$ D. $-\dfrac{1}{6}(6x-2)^{-2}+C$

    E. $-\dfrac{1}{8}(9x^2-6x+12)^{-2}+C$

07. Hasil dari $\int \dfrac{(\sqrt{x}+2)^3}{\sqrt{x}}\,dx$ = ...

    A. $\dfrac{1}{2}(\sqrt{x}+2)^4+C$ B. $\dfrac{1}{4}(\sqrt{x}+2)^4+C$ C. $\dfrac{1}{3}(\sqrt{x}+2)^4+C$

    D. $\dfrac{2}{3}(\sqrt{x}+2)^4+C$ E. $\dfrac{1}{2}(2\sqrt{x}+1)^4+C$

08. Hasil dari $\int \dfrac{(2x^{-1}+5)^3}{x^2}\,dx$ = ...

    A. $-\dfrac{1}{4}(2x^{-1}+5)^4+C$ B. $-\dfrac{1}{3}(2x^{-1}+5)^4+C$ C. $-\dfrac{1}{6}(2x^{-1}+5)^4+C$

    D. $-\dfrac{1}{5}(2x^{-1}+5)^4+C$ E. $-\dfrac{1}{8}(2x^{-1}+5)^4+C$

09. Nilai dari $\int_{0}^{1}\sqrt{3x+1}\,dx$ = ...

    A. 15/4   B. 14/9   C. 16/9

    D. 7/2   E. 15/7

10. Hasil dari $\int \sin x \cos^5 x\,dx$ = ...

    A. $\dfrac{1}{6}\sin^6 x + C$ B. $-\dfrac{1}{6}\sin^6 x + C$ C. $\dfrac{1}{6}\cos^6 x + C$

    D. $-\dfrac{1}{6}\cos^6 x + C$ E. $-\dfrac{1}{6}\cos^6 x .\sin x + C$

11. Hasil dari $\int \sin 5x (\cos 5x - 2)^2\,dx$ = ...

    A. $-\dfrac{1}{12}(\cos 5x - 2)^3 + C$ B. $-\dfrac{1}{15}(\cos 5x - 2)^3 + C$ C. $-\dfrac{1}{6}(\cos 5x - 2)^3 + C$

    D. $-\dfrac{2}{3}(\cos 5x - 2)^3 + C$ E. $-\dfrac{4}{9}(\cos 5x - 2)^3 + C$

12. $\int 4\cos 2x\,[\,2\sin^3 2x + 4\sin 2x\,]\,dx$ = …..

    A. $2.\sin^4 2x + 8\sin^2 2x + C$ B. $\sin^4 2x + 4\sin^2 2x + C$

    C. $4\sin^4 2x + 8\sin^2 2x + C$ D. $2.\cos^4 2x + 8\cos^2 2x + C$

    E. $2.\sin^5 2x + 3\sin^3 2x + C$

13. Hasil dari $\int 16x.\sin(2x^2 - 5)\,dx$ = …

    A. $2.\cos(2x^2 - 5) + C$ B. $-2.\cos(2x^2 - 5) + C$

    C. $4.\cos(2x^2 - 5) + C$ D. $-4.\cos(2x^2 - 5) + C$

    E. $\dfrac{1}{2}.\cos(2x^2 - 5) + C$

14. $\int (4x - 6)\sec(x^2 - 3x)\,\tan(x^2 - 3x)\,dx$ = …

    A. $2.\tan(x^2 - 3x) + C$ B. $\tan^2(x^2 - 3x) + C$

    C. $2.\sec(x^2 - 3x) + C$ D. $-2.\sec(x^2 - 3x) + C$

    E. $4.\sec^2(x^2 - 3x) + C$

15. Hasil dari $\int 8x.\sin^2(x^2 - 4)\,dx$ = …

    A. $2.\sin^3(x^2 - 4) + C$ B. $(2x^2 - 8) - \sin(2x^2 - 8) + C$

    C. $\sin(2x^2 - 8) + 2x^2 + C$ D. $\cos(2x^2 - 8) - 2(x^2 - 4) + C$

    E. $\cos 2(x^2 - 4) + 2(x^2 - 4) + C$

16. Hasil dari $\int \dfrac{9x^2 + 6}{\sqrt[5]{\left(x^3 + 2x - 1\right)^2}}\,dx$ = …

    A. $\dfrac{2}{5}\sqrt[5]{\left(x^3 + 2x - 1\right)^2} + C$ B. $\dfrac{5}{2}\sqrt[5]{\left(x^3 + 2x - 1\right)^2} + C$

    C. $5\sqrt[5]{\left(x^3 + 2x - 1\right)^2} + C$ D. $5\sqrt[5]{\left(x^3 + 2x - 1\right)^3} + C$

    E. $5\sqrt[5]{\left(x^3 + 2x - 1\right)^4} + C$