

EXAMEN FINALLLL

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EXAMEN FINAL

06/07/20

$$1 - \int \text{SEN}^{-1} 3x^2 dx$$

$$\sqrt{1 - (3)^2(x)^2} + x \sin^{-1}(3x) + C$$

$$\sqrt{\frac{1 - 9x^2}{3}} + x \sin^{-1}(3x) + C$$

factorizando

$$\sqrt{\frac{1}{3} - 3x^2} + \frac{x}{\text{sen}} 3x + C$$

$$2 - \int \text{COS}^{-1} 5x dx$$

$$x \cos^{-1}(5x) - \frac{\ln |(5)^2(x)^2 + 1| + C}{2(5)}$$

$$= \frac{25x^2 + 1 + C}{10}$$

factorizando

$$\frac{25/10 x^2 + 1 + C}{10}$$

$$3 - \int \text{TAN}^{-1} 1/x^2 dx$$

$$x \tan^{-1}(1/x) - \frac{\ln |(1)^2(x^2) + 1| + C}{2(1)}$$

$$\frac{\ln |x^2 + 1| + C}{2}$$

factorizando

$$\frac{x^2/2 + 1 + C}{2}$$

$$4 - \int \cos^3 2x / 3 dx$$

$$\frac{1}{3} \int \frac{\cos^3 2x}{3} dx = \frac{1}{3} \int \cos^3 2x dx$$
$$= u = 2x$$

$$\frac{1}{3} \int \cos^3 \frac{1}{2} u du$$

$$\frac{1}{3} \cdot \frac{1}{2} \int \cos^2 u \cos u du$$

$$\cos^2 x = 1 - \sin^2 x \quad u = \sin$$

$$\frac{1}{3} \cdot \frac{1}{2} (\sin 2x - \sin^3 2x)$$

$$= \frac{1}{6} \left(\sin 2x - \frac{\sin^3 2x}{3} \right) + C$$

$$5 - \int \sec^4 2x dx$$

$$\frac{1}{2} \int \sec^4(u) du$$

$$\int \sec^4 u du = \int \sin^2(u) \sec^2(u) du$$

$$\frac{1}{2} \int \sec^2 u \sec^2 u du \quad \sec^2 x = 1 + \tan^2 x$$

$$\frac{1}{2} \int 1 + u^2 du = \frac{1}{2} \int 1 du + \int u^2 du$$

$$\int 1 du = u = \int u^2 du = \frac{u^3}{3} = \frac{1}{2} (u + \frac{u^3}{3})$$

$$= \frac{1}{2} \left(\tan 2x + \frac{\tan^3(2x)}{3} \right) + C$$

$$6 - \int \csc^{-1} 2x^2 dx$$

$$\ln \left| \frac{2(\sqrt{(5)^2 x^2 - 1} + 5x)}{5} \right| + \csc^{-1}(5x) + C$$

$$\left(\frac{\sqrt{25x^2 - 4x}}{5} \right) + x \csc^{-1}(5x) + C$$

Factorizando

$$\left) \frac{25/5 x^2 - 4x + x}{\csc(5x)} + C \left($$

$$7 - \int \cot^{-1} \sqrt{2} x dx$$

$$\ln \left| \frac{\sqrt{2} x^2 + 1}{2(\sqrt{2})} \right| + x \cot^{-1}(\sqrt{2}x) + C$$

$$\ln \left| \frac{x^2 + 1}{2} \right| + x \cot^{-1}(x) + C$$

Factorizando

$$\left) \frac{x^2/2 + 1 + x \cot^{-1}(x)}{2} + C \left($$

$$8 - \int \sec^{-1} \sqrt{2} x^2 dx$$

$$\frac{\sqrt{1 - (\sqrt{2})^2 x^2}}{\sqrt{2}} + x \sec^{-1}(\sqrt{2}x) + C$$

$$\frac{1 - x^2}{1} + x \sec^{-1}(x) + C$$

$$\left) \frac{1 - x^2 + x \sec^{-1}(x)}{\sin} + C \left($$

$$9. \int \sinh \frac{1}{x^2} dx$$

$$10. \int \sinh 2x dx$$

$$2 \sinh x \cosh x$$