

Calculus Assignment # 5

Evaluate each of the following integrals please.

$$(1) \int \frac{dx}{\sqrt{1-4x^2}}$$

$$(8) \int \frac{dx}{x\sqrt{x-1}}$$

$$(2) \int \frac{dx}{x\sqrt{9x^2-1}}$$

$$(9) \int \frac{(2x^3 - x^2 + 8x - 1)dx}{4 + x^2}$$

$$(3) \int \frac{dx}{\sqrt{9-x^2}}$$

$$(10) \int \frac{(3x-5)dx}{\sqrt{16-9x^2}}$$

$$(4) \int \frac{dx}{x\sqrt{x^2-25}}$$

$$(11) \int \frac{dx}{\sqrt{5-x^2-4x}}$$

$$(5) \int \frac{dx}{25x^2+4}$$

$$(12) \int \frac{dx}{x^{\frac{1}{3}} + x^{\frac{5}{3}}}$$

$$(6) \int \frac{x dx}{4+x^4}$$

$$(13) \int \frac{(x^2+3)dx}{x\sqrt{9x^2-16}}$$

$$(7) \int \frac{dx}{\sqrt{9-4x^2}}$$

$$(14) \int \frac{dx}{x^2+2x+10}$$

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Answers

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

(8) $2\sec^{-1}|\sqrt{x}| + C$

(2) $\sec^{-1}|3x| + C$

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

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

(10) $-\frac{1}{3}\sqrt{16-9x^2} - \frac{5}{3}\sin^{-1}\left(\frac{3x}{4}\right) + C$

(4) $\frac{1}{5}\sec^{-1}\left|\frac{x}{5}\right| + C$

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

(5) $\frac{1}{10}\tan^{-1}\left(\frac{5x}{2}\right) + C$

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

(6) $\frac{1}{4}\tan^{-1}\left(\frac{x^2}{2}\right) + C$

(13) $\frac{1}{9}\sqrt{9x^2-16} + \frac{3}{4}\sec^{-1}\left|\frac{3x}{4}\right| + C$

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

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