



Integration – Trigonometric polynomials

Name _____ Date _____

Calculate indefinite integral of a trigonometric polynomial.

(1) $\int \cos 3x \, dx$

(2) $\int \sin^3 x \cos^2 x \, dx$

(3) $\int \cos 4x \cos 10x \, dx$

(4) $\int 3 \sin 3x \, dx$

(5) $\int 4 \sin x \cos^3 x \, dx$

(6) $\int \cos 3x \cos 5x \, dx$

(7) $\int \cos^2 6x \, dx$

(8) $\int \cos x \sin x \sin 2x \, dx$

(9) $\int \sin x \cos x \cos 2x \, dx$

(10) $\int \cos x \sin x \sin 2x \sin 4x \, dx$

(11) $\int \cos 2x \cos 7x \, dx$

(12) $\int \frac{\cos 3x}{\cos x} \, dx$

(13) $\int (7 \cos 3x - 3 \sin 2x) \, dx$

(14) $\int 2 \cos 7x \, dx$

(15) $\int \sin x \cos 4x \, dx$

(16) $\int \cos x \sin x \sin 2x \sin 4x \, dx$

(17) $\int \cos 2x \cos 3x \, dx$

(18) $\int \cos \left(x + \frac{\pi}{4} \right) \cos x \, dx$



Answers

Calculate indefinite integral of a trigonometric polynomial.

$$(1) \quad \frac{1}{3} \sin 3x$$

$$(2) \quad -\frac{1}{8} \cos x - \frac{1}{48} \cos 3x + \frac{1}{80} \cos 5x$$

$$(3) \quad -\frac{1}{12} \sin -6x + \frac{1}{28} \sin 14x$$

$$(4) \quad -\cos 3x$$

$$(5) \quad -\cos^4 x$$

$$(6) \quad -\frac{1}{4} \sin -2x + \frac{1}{16} \sin 8x$$

$$(7) \quad \frac{x}{2} + \frac{1}{24} \sin 12x$$

$$(8) \quad \frac{x}{4} - \frac{1}{16} \sin 4x$$

$$(9) \quad -\frac{1}{16} \cos 4x$$

$$(10) \quad \frac{1}{8} \sin^4 2x$$

$$(11) \quad -\frac{1}{10} \sin -5x + \frac{1}{18} \sin 9x$$

$$(12) \quad -x + \sin 2x$$

$$(13) \quad \frac{7}{3} \sin 3x + \frac{3}{2} \cos 3x$$

$$(14) \quad \frac{2}{7} \sin 7x$$

$$(15) \quad \frac{1}{6} \cos 3x - \frac{1}{10} \cos 5x$$

$$(16) \quad \frac{1}{8} \sin^4 2x$$

$$(17) \quad -\frac{1}{2} \sin -x + \frac{1}{10} \sin 5x$$

$$(18) \quad \frac{x}{2\sqrt{2}} + \frac{1}{4} \sin \left(\frac{\pi}{4} + 2x \right)$$