

Find an antiderivative for each function. Choose the correct answer

Part 1

①. $\int (4x^5 - 6x^3 + 3x^2) dx =$

- A) $\frac{2}{3}x^6 - \frac{3}{2}x^4 + x^3 + C$
 B) $\frac{2}{3}x^6 - \frac{3}{2}x^4 + \frac{1}{3}x^3 + C$
 C) $\frac{4}{6}x^6 - \frac{6}{4}x^4 + x^3 + C$
 D) $\frac{2}{3}x^6 - 3x^4 + x^3 + C$

②. $\int (7x^4 + 5x^2 - 2x + 1) dx =$

- A) $\frac{7}{5}x^5 + \frac{5}{3}x^3 - x^2 + x + C$
 B) $\frac{7}{5}x^5 + \frac{5}{2}x^3 - x^2 + x + C$
 C) $\frac{7}{5}x^5 + \frac{5}{3}x^3 - 2x^2 + x + C$
 D) $\frac{7}{4}x^5 + \frac{5}{3}x^3 - x^2 + x + C$

Part 2

③. $\int e^{4x} dx =$

- A) $\frac{1}{4}e^{4x} + C$
 B) $4e^{4x} + C$
 C) $e^{4x} + C$
 D) $\ln(e^{4x}) + C$

④. $\int e^{5x+2} dx =$

- A) $\frac{1}{5}e^{5x+2} + C$
 B) $5e^{5x+2} + C$
 C) $e^{5x+2} + C$
 D) $\ln(e^{5x+2}) + C$

⑤. $\int \frac{6}{e^{4x}} dx =$

- A) $-\frac{3}{2}e^{-4x} + C$
 B) $\frac{6}{4}e^{-4x} + C$
 C) $-6e^{-4x} + C$
 D) $\frac{3}{2}e^{-4x} + C$

Part 3

⑥. $\int \cos(7x) dx =$

- A) $\frac{1}{7} \sin(7x) + C$
 B) $7 \sin(7x) + C$
 C) $-\frac{1}{7} \sin(7x) + C$
 D) $\cos(7x) + C$

⑦. $\int (5 \sin(4x) + 2 \cos(6x)) dx =$

- A) $-\frac{5}{4} \cos(4x) + \frac{1}{3} \sin(6x) + C$
 B) $\frac{5}{4} \cos(4x) + \frac{1}{3} \sin(6x) + C$
 C) $-5 \cos(4x) + 2 \sin(6x) + C$
 D) $-\frac{5}{4} \cos(4x) - \frac{1}{3} \sin(6x) + C$

Part 4

⑧. $\int \frac{4x}{x^2+9} dx =$

- A) $2 \ln|x^2+9| + C$
 B) $4 \ln|x^2+9| + C$
 C) $\ln|x^2+9| + C$
 D) $\frac{4}{x^2+9} + C$

⑨. $\int \frac{6x}{x^2-3} dx =$

- A) $3 \ln|x^2-3| + C$
 B) $6 \ln|x^2-3| + C$
 C) $\ln|x^2-3| + C$
 D) $\frac{6}{x^2-3} + C$

⑩. $\int \frac{2x}{x^2+10} dx =$

- A) $\ln|x^2+10| + C$
 B) $2 \ln|x^2+10| + C$
 C) $\frac{1}{2} \ln|x^2+10| + C$
 D) $\frac{2}{x^2+10} + C$

Part 5

⑪. $\int \frac{6}{1+9x^2} dx =$

- A) $2 \tan^{-1}(3x) + C$
 B) $6 \tan^{-1}(x) + C$
 C) $\tan^{-1}(3x) + C$
 D) $\frac{1}{3} \tan^{-1}(3x) + C$

⑫. $\int \frac{4}{\sqrt{4-x^2}} dx =$

- A) $2 \sin^{-1}\left(\frac{x}{2}\right) + C$
 B) $4 \sin^{-1}(x) + C$
 C) $\sin^{-1}(2x) + C$
 D) $\frac{1}{2} \sin^{-1}\left(\frac{x}{2}\right) + C$

⑬. $\int \frac{5}{1+25x^2} dx =$

- A) $\tan^{-1}(5x) + C$
 B) $5 \tan^{-1}(x) + C$
 C) $\frac{1}{5} \tan^{-1}(5x) + C$
 D) $\tan^{-1}(25x) + C$

Part 6

⑮. $\int (6x^{-4} + 2x^{1/3}) dx =$

- A) $-2x^{-3} + \frac{3}{2}x^{4/3} + C$
 B) $-\frac{3}{2}x^{-3} + \frac{3}{4}x^{4/3} + C$
 C) $-2x^{-3} + \frac{3}{4}x^{4/3} + C$
 D) $-6x^{-3} + \frac{3}{4}x^{4/3} + C$

⑯. $\int (x^{-1} + 3x^4 - 2x^{-2}) dx =$

- A) $\ln|x| + \frac{3}{5}x^5 + 2x^{-1} + C$
 B) $\ln|x| + \frac{3}{5}x^5 - 2x^{-1} + C$
 C) $\frac{1}{x} + \frac{3}{5}x^5 - 2x^{-1} + C$
 D) $\ln|x| + 3x^5 - 2x^{-1} + C$