Date Planned : __ / __ / __	Daily Tutorial Sheet - 8	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Level - 2	Exact Duration :_____

101. $\int \frac{x-1}{\left[(x+1)^3\,(x+2)^5\right]^{1/4}}\,dx$

102. $\int \sqrt{\frac{\sin(x-\alpha)}{\sin(x+\alpha)}}\,dx$

103. If $\int x^{13/2}\,.\,(1+x^{5/2})^{1/2}\,dx = A\,(1+x^{5/2})^{7/2} + B\,(1+x^{5/2})^{5/2} + C\,(1+x^{5/2})^{3/2}$, then :

(A) $A = -\frac{4}{35}, B = -\frac{8}{25}, C = \frac{4}{15}$ **(B)** $A = -\frac{4}{35}, B = \frac{8}{25}, C = \frac{4}{15}$

(C) $A = \frac{+4}{35}, B = \frac{-8}{25}, C = \frac{+4}{15}$ **(D)** None of these

104. $\int \frac{\sqrt{x^2+1}\left[\log(x^2+1) - 2\log x\right]}{x^4}\,dx$ is equal to :

(A) $\frac{(x^2+1)^{3/2}}{x^3}\left[\frac{2}{3} - \log\left(\frac{x^2+1}{x^2}\right)\right] + C$ **(B)** $\frac{(x^2+1)^{3/2}}{3x^3}\left[\log\left(\frac{x^2+1}{x^2}\right)\right] + C$

(C) $\frac{(x^2+1)^{3/2}}{3x^3}\left[\frac{2}{3} - \log\left(\frac{x^2+1}{x^2}\right)\right] + C$ **(D)** None of these

105. If $\int \frac{x^2}{(x\sin x + \cos x)^2}\,dx = \frac{f(x)}{x\sin x + \cos x} + \tan x + C$, then

(A) $f(x) = \frac{x}{\cos x}$ **(B)** $f(x) = \frac{\cos x}{x}$ **(C)** $f(x) = \frac{-x}{\cos x}$ **(D)** None of these

106. $\int e^x \left(\frac{x^3+x+1}{(1+x^2)^{3/2}}\right)dx$ is equal to :

(A) $\frac{x^2 e^x}{(1+x^2)^{1/2}} + c$ **(B)** $\frac{e^x}{x\,(1+x^2)^{1/2}} + c$ **(C)** $\frac{e^x}{(1+x^2)^{1/2}} + c$ **(D)** $\frac{x\,e^x}{(1+x^2)^{1/2}} + c$

107. $\int \frac{2}{(2-x)^2}\sqrt[3]{\frac{2-x}{2+x}}\,dx$ is equal to :

(A) $\frac{4}{3}\left(\frac{2+x}{2-x}\right)^{2/3} + C$ **(B)** $\frac{3}{4}\left(\frac{2+x}{2-x}\right)^{2/3} + C$

(C) $\frac{3}{4}\left(\frac{2-x}{2+x}\right)^{2/3} + C$ **(D)** None of these

108. $\int \frac{\sqrt[3]{1+\sqrt[4]{x}}}{\sqrt{x}}\,dx$ is equal to:

(A) $12\left(\frac{\left(1+\sqrt[4]{x}\right)^{7/3}}{7}+\frac{\left(1+\sqrt[4]{x}\right)^{4/3}}{4}\right)+C$ **(B)** $12\left(\frac{\left(1+\sqrt[4]{x}\right)^{7/3}}{7}-\frac{\left(1+\sqrt[4]{x}\right)^{4/3}}{4}\right)+C$

(C) $6\left(\frac{\left(1+\sqrt[4]{x}\right)^{7/3}}{7}-\frac{\left(1+\sqrt[4]{x}\right)^{4/3}}{4}\right)+C$ **(D)** None of these

109. $\int \sqrt[3]{x}\,\sqrt[7]{1+\sqrt[3]{x^4}}\,dx$ is equal to:

(A) $\frac{21}{32}\left(1+\sqrt[3]{x^4}\right)^{8/7}+C$ **(B)** $\frac{32}{21}\left(1+\sqrt[3]{x^4}\right)^{8/7}+C$

(C) $\frac{7}{32}\left(1+\sqrt[3]{x^4}\right)^{8/7}+C$ **(D)** None of these

110. $\int \frac{(x-x^5)^{1/5}}{x^6}\,dx$ is equal to :

(A) $\frac{5}{24}\left(\frac{1}{x^4}-1\right)^{6/5}+C$ **(B)** $\frac{5}{24}\left(1-\frac{1}{x^4}\right)^{6/5}+C$

(C) $-\frac{5}{24}\left(\frac{1}{x^4}-1\right)^{6/5}+C$ **(D)** None of these