



Lesson 7-1 Review of Formulas and Techniques

1- Evaluate $\int \sin 6x \, dx$

A- $= -\cos 6x + c$

B- $= \frac{-1}{6} \cos 6x + c$

C- $= \frac{1}{6} \cos 6x + c$

D- $= \frac{-1}{6} \cos 6x$

2- Evaluate $\int \sec 2x \tan 2x \, dx$

A- $= 0.5 \sec 2x + c$

B- $= -0.5 \sec 2x + c$

C- $= 0.5 \tan 2x + c$

D- $= -0.5 \tan 2x + c$

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3- Evaluate $\int (x^2 + 4)^2 \, dx$

A- $= x^5 + 8x^3 + 16x + c$

B- $= \frac{1}{5}x^5 + \frac{8}{3}x^3 + 16x$

C- $= \frac{1}{5}x^5 + \frac{8}{3}x^3 + 16x + c$

D- $= \frac{1}{5}x^5 + 8x^3 + 16x + c$

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4- Evaluate $\int x(x^2 + 4)^2 \, dx$

A- $= \frac{1}{6}x^6 + 2x^4 + 4x^2 + c$

B- $= \frac{1}{6}x^6 + 2x^4 + 8x^2 + c$

C- $= 6x^6 + 2x^4 + 8x^2 + c$

D- $= \frac{1}{6}x^6 + 16x^4 + 8x^2 + c$



- 5- Evaluate $\int \frac{3}{16+x^2} dx$
- A- $= \frac{3}{4} \tan^{-1}(4x) + c$
- B- $= \frac{3}{4} \tan^{-1}\left(\frac{x}{4}\right) + c$
- C- $= \frac{3}{8} \tan^{-1}(4x) + c$
- D- $= \frac{3}{8} \tan^{-1}\left(\frac{x}{4}\right) + c$

- 6- Evaluate $\int \frac{2}{4+4x^2} dx$
- A- $= \frac{1}{2} \tan^{-1}(x) + c$
- B- $= 2 \tan^{-1}(x) + c$
- C- $= \frac{1}{4} \tan^{-1}(2x) + c$
- D- $= 4 \tan^{-1}(x) + c$

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- 7- Evaluate $\int \frac{1}{\sqrt{3-2x-x^2}} dx$
- A- $= 2 \cos^{-1}(x+1) + c$
- B- $= 2 \sin^{-1}(x+1) + c$
- C- $= \cos^{-1}\left(\frac{x+1}{2}\right) + c$
- D- $= \sin^{-1}\left(\frac{x+1}{2}\right) + c$

- 8- Evaluate $\int \frac{x+1}{\sqrt{3-2x-x^2}} dx$
- A- $= -\sqrt{4 - (x+1)^2}$
- B- $= \sqrt{4 - (x+1)^2}$
- C- $= \sqrt{3 - (x+1)^2}$
- D- $= -\sqrt{2 - (x+1)^2}$



- 9- Evaluate $\int \frac{4}{5+2x+x^2} dx$
- A- $= 2\sec^{-1}\left(\frac{x+1}{2}\right) + c$
- B- $= 2\cot^{-1}\left(\frac{x+1}{2}\right) + c$
- C- $= 2\tan^{-1}\left(\frac{x+1}{2}\right) + c$
- D- $= 2\cos^{-1}\left(\frac{x+1}{2}\right) + c$

- 10- Evaluate $\int \frac{4x+4}{5+2x+x^2} dx$
- A- $= 8 + (x+1)^2 + c$
- B- $= 2\ln|4 + (x+1)^2| + c$
- C- $= 8 + 2(x+1)^2 + c$
- D- $= 4 + (x+1)^2 + c$

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- 11- Evaluate $\int \frac{4x}{5+2x+x^2} dx$
- A- $= 2\ln|4 + (x+1)^2| - 2\tan^{-1}\left(\frac{x+1}{2}\right) + c$
- B- $= 2\ln|4 + (x+1)^2| + 2\tan^{-1}\left(\frac{x+1}{2}\right) + c$
- C- $= 2\ln|4 + (x+1)^2| - \tan^{-1}\left(\frac{x+1}{2}\right) + c$
- D- $= 2\ln|4 + (x+1)^2| + \tan^{-1}\left(\frac{x+1}{2}\right) + c$

- 12- Evaluate $\int \frac{x+1}{4+2x+x^2} dx$
- A- $= 2\ln|1 + (x+1)^2| + c$
- B- $= 2\ln|3 + (x+1)^2| + c$
- C- $= 0.5\ln|3 + (x+1)^2| + c$
- D- $= 0.5\ln|3 - (x+1)^2| + c$



13- Evaluate $\int_{-\pi/4}^0 \frac{\sin x}{\cos^2 x} dx$

A- $= 1 + \sqrt{2}$

B- $= 2 - \sqrt{2}$

C- $= 2 + \sqrt{2}$

D- $= 1 - \sqrt{2}$

14- Evaluate $\int_{-\pi/4}^{\pi/2} \frac{1}{\sin^2 x} dx$

A- $= 1$

B- $= 0$

C- $= -1$

D- $= -\sqrt{2}/2$

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15- Evaluate $\int \frac{e^x}{\sqrt{1-e^{2x}}} dx$

A- $= \sin^{-1}(e^{2x}) + c$

B- $= \sin^{-1}(e^x) + c$

C- $= \tan^{-1}(e^{2x}) + c$

D- $= \tan^{-1}(e^x) + c$

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16- Evaluate $\int \frac{1}{\sqrt{x}+x} dx$

A- $= 2 \ln|1 + x| + c$

B- $= \ln|1 + \sqrt{x}| + c$

C- $= 2 \ln|1 + \sqrt{x}| + c$

D- $= \ln|1 + x| + c$