

This print-out should have 15 questions. Multiple-choice questions may continue on the next column or page – find all choices before answering.

001 10.0 points

Evaluate the integral

$$I = \int_0^2 te^{-t} dt.$$

~~1.~~ $I = 1 + \frac{3}{e^3}$

~~2.~~ $I = 1 + \frac{2}{e^3}$

~~3.~~ $I = 1 - \frac{2}{e^2}$

~~4.~~ $I = 1 - \frac{2}{e^3}$

~~5.~~ $I = 1 + \frac{3}{e^2}$

6. $I = 1 - \frac{3}{e^2}$

002 10.0 points

Evaluate the integral

$$I = \int_0^1 6xe^{2x} dx.$$

~~1.~~ $I = 3(2e^2 + 1)$

~~2.~~ $I = \frac{3}{2}e^2$

~~3.~~ $I = 3(e^2 + 1)$

~~4.~~ $I = 3e^2$

~~5.~~ $I = \frac{3}{2}(2e^2 + 1)$

6. $I = \frac{3}{2}(e^2 + 1)$

003 10.0 points

Evaluate the definite integral

$$I = \int_0^{\ln(3)} 5(3 - xe^x) dx.$$

~~1.~~ $I = 4$

~~2.~~ $I = 2$

~~3.~~ $I = 8$

~~4.~~ $I = 6$

5. $I = 10$

004 10.0 points

Determine the integral

$$I = \int (6x + 7)e^{2x} dx.$$

~~1.~~ $I = (3x - 5)e^{2x} + C$

~~2.~~ $I = 2(3x + 5)e^{2x} + C$

3. $I = (3x + 2)e^{2x} + C$

~~4.~~ $I = 2(3x + 2)e^{2x} + C$

~~5.~~ $I = (3x + 5)e^{2x} + C$

~~6.~~ $I = (3x - 2)e^{2x} + C$

005 10.0 points

Evaluate the integral

$$I = \int_0^1 (7x^2 - 5)e^x dx.$$

~~1.~~ $I = 2e + 9$

~~2.~~ $I = 2(e - 1)$

~~3.~~ $I = 9e - 2$

4. $I = 2e - 9$

~~5.~~ $I = 9e + 2$

006 10.0 points

Evaluate the definite integral

$$I = \int_1^9 e^{\sqrt{t}} dt.$$

~~1.~~ $I = 4e^3 - 2e$

~~2.~~ $I = 4e^3 + 2e$

~~3.~~ $I = 6e^9$

~~4.~~ $I = 6e^3$

~~5.~~ $I = 6e^9 + 2e$

6. $I = 4e^3$

007 10.0 points

Determine the integral

$$I = \int e^{-4x} \cos x dx.$$

~~1.~~ $I = \frac{1}{17}e^{-4x}(\cos x - 4 \sin x) + C$

~~2.~~ $I = \frac{1}{5}e^{-4x}(\sin x - 4 \cos x) + C$

~~3.~~ $I = -\frac{1}{5}e^{-4x}(\cos x + 4 \sin x) + C$

~~4.~~ $I = \frac{1}{17}e^{-4x}(\sin x + 4 \cos x) + C$

~~5.~~ $I = \frac{1}{5}e^{-4x}(\cos x + 4 \sin x) + C$

6. $I = \frac{1}{17}e^{-4x}(\sin x - 4 \cos x) + C$

008 10.0 points

Evaluate the integral

$$I = \int_0^{\pi} 2x \cos x dx.$$

~~1.~~ $I = \pi - 4$

~~2.~~ $I = 2\pi$

~~3.~~ $I = -2$

4. $I = -4$

~~5.~~ $I = \pi - 2$

~~6.~~ $I = 2$

009 10.0 points

Evaluate the integral

$$I = \int_0^{\pi/2} (x^2 + 4) \sin x dx.$$

~~1.~~ $I = \frac{\pi}{2} - 4$

~~2.~~ $I = \pi - 2$

~~3.~~ $I = \pi + 4$

~~4.~~ $I = \frac{\pi}{2} + 4$

5. $I = \pi + 2$

~~6.~~ $I = \frac{\pi}{2} + 2$

010 10.0 points

Determine the indefinite integral

$$I = \int e^{-x} \sin 3x dx.$$

~~1.~~ $I = \frac{1}{10}e^{-x}(\sin 3x + 3 \cos 3x) + C$

2. $I = -\frac{1}{10}e^{-x}(\sin 3x + 3 \cos 3x) + C$

~~3. $I = -\frac{1}{9}e^x(\sin 3x - 3 \cos 3x) + C$~~

~~4. $I = \frac{1}{9}e^x(\sin 3x + 3 \cos 3x) + C$~~

~~5. $I = -\frac{1}{9}e^{-x}(\sin 3x - 3 \cos 3x) + C$~~

~~6. $I = \frac{1}{10}e^x(\sin 3x - 3 \cos 3x) + C$~~

011 10.0 points

Evaluate the definite integral

$$I = \int_1^e 4x^3 \ln(x) dx.$$

1. $I = \frac{1}{4}(3e^4 + 1)$

~~2. $I = (3e^4 - 1)$~~

~~3. $I = (3e^4 + 1)$~~

~~4. $I = \frac{1}{4}(3e^4 - 1)$~~

~~5. $I = \frac{3}{4}e^4$~~

012 10.0 points

Evaluate the definite integral

$$I = \int_0^2 \sin^{-1}\left(\frac{x}{2}\right) dx.$$

~~1. $I = -1$~~

~~2. $I = \pi - 1$~~

~~3. $I = \frac{1}{2}(\pi - 2 \ln(2))$~~

~~4. $I = \frac{1}{2}(\pi + 2 \ln(2))$~~

~~5. $I = 2$~~

6. $I = \pi - 2$

013 10.0 points

Evaluate the integral

$$I = \int_1^e 2x \ln(x) dx.$$

~~1. $I = e + 1$~~

~~2. $I = e - 1$~~

~~3. $I = e^2 + 1$~~

4. $I = \frac{1}{2}(e^2 + 1)$

~~5. $I = \frac{1}{2}(e^2 - 1)$~~

~~6. $I = \frac{1}{2}(e - 1)$~~

014 10.0 points

Evaluate the integral

$$I = \int_0^{\pi/4} x \sec^2 x dx.$$

~~1. $I = \frac{1}{4}\pi - \frac{1}{2} \ln 2$~~

2. $I = \frac{1}{4}\pi + \frac{1}{2} \ln 2$

~~3. $I = \frac{1}{2}\pi + \frac{1}{4} \ln 2$~~

~~4. $I = \frac{1}{4}\pi - \ln 2$~~

~~5. $I = \frac{1}{2}\pi - \frac{1}{4} \ln 2$~~

~~6. $I = \frac{1}{2}\pi + \ln 2$~~

015 10.0 points

Evaluate the integral

$$I = \int_0^1 x f(x) dx$$

when

$$f(1) = 7, \quad f'(1) = 6.$$

~~1.~~ $I = \frac{5}{4} - \frac{1}{6} \int_0^1 x^3 f''(x) dx$

~~2.~~ $I = 5 - \frac{1}{2} \int_0^1 x^2 f'(x) dx$

3. $I = \frac{5}{2} + \frac{1}{6} \int_0^1 x^3 f''(x) dx$

~~4.~~ $I = \frac{15}{4} - \frac{1}{2} \int_0^1 x^2 f''(x) dx$

~~5.~~ $I = 5 + \frac{1}{2} \int_0^1 x^2 f'(x) dx$