

This print-out should have 5 questions. Multiple-choice questions may continue on the next column or page – find all choices before answering.

001 10.0 points

Evaluate the integral

$$I = \int_0^{\pi/2} \cos^3 x \, dx .$$

1. $I = 1$

2. $I = \frac{5}{6}$

3. $I = \frac{1}{3}$

4. $I = \frac{2}{3}$

5. $I = \frac{1}{6}$

002 10.0 points

Determine the indefinite integral

$$I = \int 3 \sin^2 x \cos^3 x \, dx .$$

1. $I = \sin^3 x - \frac{3}{5} \sin^5 x + C$

2. $I = -\frac{3}{5} \sin^3 x - \cos^5 x + C$

3. $I = \frac{3}{5} \cos^3 x - \sin^5 x + C$

4. $I = -\cos^3 x + \frac{3}{5} \cos^5 x + C$

5. $I = \sin^3 x + \frac{3}{5} \sin^5 x + C$

6. $I = \frac{3}{5} \cos^3 x + \sin^5 x + C$

003 10.0 points

Evaluate the integral

$$I = \int_0^{\pi/4} (1 + 2 \sin^2(\theta)) \, d\theta .$$

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

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

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

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

5. $I = -\pi$

6. $I = \pi$

004 10.0 points

Evaluate the integral

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

1. $I = \frac{3}{2}\pi$

2. $I = 3$

3. $I = \frac{3}{4}\pi$

4. $I = \frac{3}{2}$

5. $I = 3\pi$

6. $I = \frac{3}{4}$

005 10.0 points

Evaluate the integral

$$I = \int_0^{\pi/2} 3 \sin^2(x) \cos^3(x) \, dx .$$

1. $I = \frac{4}{5}$

2. $I = \frac{2}{5}$

3. $I = \frac{6}{5}$

4. $I = \frac{1}{5}$

5. $I = \frac{8}{5}$