This print-out should have 23 questions. Multiple-choice questions may continue on the next column or page – find all choices before answering. The due time is Central time.

version 888

CalC8e58s

54:06, calculus3, multiple choice, > 1 min, wording-variable.

001

Determine the indefinite integral

$$I = \int 2x \ln(2+x)\, dx\,.$$

1. $I = (x^2-4)\ln(2+x) + 2x + \frac{1}{2}x^2 + C$

2. $I = \frac{1}{2}(x^2-4)\ln(2+x) - x - \frac{1}{4}x^2 + C$

3. $I = \frac{1}{2}(x^2-4)\ln(2+x) + x - \frac{1}{4}x^2 + C$

4. $I = 2(x^2-4)\ln(2+x) - 4x + x^2 + C$

5. $I = (x^2-4)\ln(2+x) + 2x - \frac{1}{2}x^2 + C$

6. $I = 2(x^2-4)\ln(2+x) + 4x - x^2 + C$

CalC8a08d

54:02, calculus3, multiple choice, > 1 min, wording-variable.

002

Find the indefinite integral

$$\int 3x(\ln x)^2\, dx.$$

1. $\frac{3}{2}x^2\Big((\ln x)^2 + \ln x + \frac{1}{2}\Big) + C$

2. $6x^2\Big((\ln x)^2 - \ln x + \frac{1}{2}\Big) + C$

3. $\frac{3}{2}x^2\Big((\ln x)^2 - \ln x + \frac{1}{2}\Big) + C$

4. $3x^2\Big((\ln x)^2 - \ln x + \frac{1}{2}\Big) + C$

5. $\frac{3}{2}x^2\Big((\ln x)^2 - \ln x - \frac{1}{2}\Big) + C$

CalC8b22exam

54:03, calculus3, multiple choice, > 1 min, wording-variable.

003

Evaluate the definite integral

$$I = \int_0^{\pi/4} 4\tan^4 x\, dx\,.$$

1. $I = \pi - \frac{8}{3}$

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

3. $I = 2\pi - \frac{8}{3}$

4. $I = \pi + \frac{8}{3}$

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

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

CalC8b01exam

54:03, calculus3, multiple choice, < 1 min, wording-variable.

004

Evaluate the integral

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

1. $I = 1$

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

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

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

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

CalC8c25exam

54:04, calculus3, multiple choice, > 1 min, wording-variable.

005

Evaluate the definite integral

$$I = \int_{\sqrt{2}}^{2} \frac{8}{x\sqrt{x^2-1}}\, dx\,.$$

1. $I = 1$

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

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

4. $I = \pi$

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

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

CalC8e16exam

54:06, calculus3, multiple choice, > 1 min, wording-variable.

006

Evaluate the definite integral

$$I = \int_{0}^{\frac{1}{\sqrt{2}}} \frac{2x^2}{\sqrt{1-x^2}}\, dx\,.$$

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

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

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

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

5. $I = \frac{\pi}{4} - \frac{1}{8}$

6. $I = \frac{\pi}{8} - \frac{1}{4}$

CalC8c02c

54:04, calculus3, multiple choice, > 1 min, wording-variable.

007

Evaluate the integral

$$I = \int_{0}^{1/4} \frac{4}{\sqrt{1-4x^2}}\, dx\,.$$

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

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

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

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

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

6. $I = \frac{1}{2}$

CalC8e04a

54:06, calculus3, multiple choice, < 1 min, wording-variable.

008

Evaluate the definite integral

$$I = \int_{0}^{1} (5+4x)^{-1/2}\, dx\,.$$

1. $I = \frac{1}{4}\left(3-\sqrt{5}\right)$

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

3. $I = \frac{1}{2}\Big(3 - 2\Big)$

4. $I = 0$

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

6. $I = \frac{1}{2}\Big(3 - \sqrt{5}\Big)$

CalC8c32a

54:04, calculus3, multiple choice, > 1 min, wording-variable.

009

Evaluate the definite integral

$$I = \int_{-3}^{-1} \frac{4}{\sqrt{7 - 6x - x^2}}\, dx\,.$$

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

2. $I = \sqrt{3}$

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

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

5. $I = \pi$

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

CalC8d10a

54:05, calculus3, multiple choice, > 1 min, wording-variable.

010

Evaluate the definite integral

$$I = \int_{0}^{1} \frac{18}{2x^2 - 3x - 9}\, dx\,.$$

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

2. $I = 4\ln\frac{4}{5}$

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

4. $I = 4\ln\frac{2}{5}$

5. $I = 2\ln\frac{3}{5}$

6. $I = 4\ln\frac{3}{5}$

CalC8g01c

51:06, calculus3, multiple choice, > 1 min, wording-variable.

011

If the points

$$(0,\,3),\quad (\tfrac{1}{2},\,5),\quad (1,\,4),\quad (\tfrac{3}{2},\,5),\quad (2,\,3)$$

lie on the graph of a continuous function $y = f(x)$, use Simpson's Rule and all these points to estimate the definite integral

$$I = \int_{0}^{2} f(x)\, dx.$$

1. $I \approx 9$

2. $I \approx \frac{17}{2}$

3. $I \approx \frac{25}{3}$

4. $I \approx \frac{53}{6}$

5. $I \approx \frac{26}{3}$

CalC8g07a

51:06, calculus3, multiple choice, > 1 min, wording-variable.

012

After partitioning the interval [0, 4] into 4 equal subintervals, use the trapezoidal rule to estimate the integral

$$I = \int_0^4 \frac{7}{\sqrt{1+x^2}}\, dx\,.$$

1. $I \approx 15.2427$

2. $I \approx 14.4427$

3. $I \approx 14.8427$

4. $I \approx 14.6427$

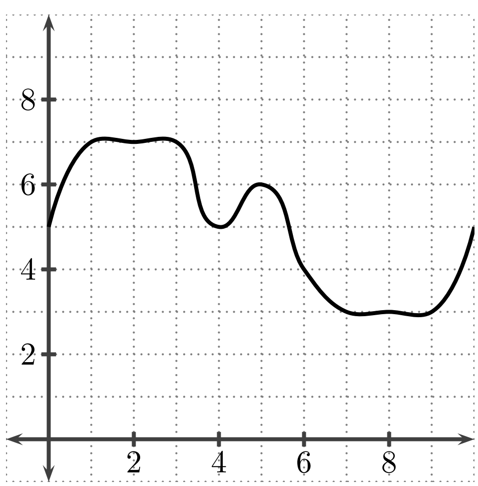
5. $I \approx 15.0427$

CalC8g01d

51:06, calculus3, multiple choice, $<$ 1 min, wording-variable.

013

If f is the function whose graph on [0, 10] is given by



use the Trapezoidal Rule with $n = 5$ to estimate the definite integral

$$I = \int_3^8 f(x)\, dx\,.$$

1. $I \approx 23$

2. $I \approx \frac{47}{2}$

3. $I \approx \frac{43}{2}$

4. $I \approx \frac{45}{2}$

5. $I \approx 22$

CalC8h21b

54:08, calculus3, multiple choice, $>$ 1 min, normal.

014

Determine if the improper integral

$$I = \int_e^\infty \frac{1}{x(\ln 3x)^2}\, dx$$

converges, and if it does, compute its value.

1. $I = \ln 3e$

2. $I = \frac{3}{\ln 3e}$

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

4. $I = 3$

5. $I = \frac{1}{\ln 3e}$

6. I does not converge

CalC8h07s

54:08, calculus3, multiple choice, $>$ 1 min, wording-variable.

015

Determine if the improper integral

$$I = \int_{-\infty}^5 \frac{1}{\sqrt{6-z}}\, dz$$

is convergent or divergent, and if convergent, find its value.

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

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

3. $I = 1$

4. I is divergent

5. $I = 2$

CalC8h40s

54:08, calculus3, multiple choice, > 1 min, wording-variable.

016

Determine if the improper integral

$$I = \int_0^1 \frac{4 \ln 7x}{\sqrt{x}} \, dx$$

is convergent or divergent, and if convergent, find its value.

1. $I = 8(\ln 7 + 2)$

2. $I = 4(\ln 7 + 1)$

3. I is divergent

4. $I = 7(\ln 7 + 1)$

5. $I = 7(\ln 7 - 1)$

6. $I = 4(\ln 7 - 2)$

7. $I = 8(\ln 7 - 2)$

CalC8h57exam

54:08, calculus3, multiple choice, < 1 min, wording-variable.

017

Determine if the integral

$$I = \int_0^1 \frac{4 + 3x^{-1/3}}{x^{1/2}} \, dx$$

converges, and if it does find its value.

1. $I = 27$

2. $I = 26$

3. $I = 25$

4. I does not converge

5. $I = 29$

6. $I = 28$

CalC15c11a

59:03, calculus3, multiple choice, < 1 min, wording-variable.

018

Determine f_x when

$$f(x, y) = (xy - 3)e^{-xy} .$$

1. $f_x = -y(2 + xy)e^{-xy}$

2. $f_x = -x(2 + 3xy)e^{-xy}$

3. $f_x = x(4 - 3xy)e^{-xy}$

4. $f_x = y(4 - xy)e^{-xy}$

5. $f_x = -x(2 + xy)e^{-xy}$

6. $f_x = x(3xy - 4)e^{-xy}$

7. $f_x = -y(2 - xy)e^{-xy}$

8. $f_x = y(xy - 4)e^{-xy}$

CalC15c10a

59:03, calculus3, multiple choice, > 1 min, normal.

019

Find the slope in the x-direction at the point $P(0, 2, f(0, 2))$ on the graph of f when

$$f(x, y) = 3(2x + y)e^{-xy}.$$

1. slope $= -12$

2. slope $= -8$

3. slope $= -6$

4. slope $= -10$

5. slope $= -4$

CalC15c47a

59:03, calculus3, multiple choice, > 1 min, wording-variable.

020

Find the value of $f_{xx} + f_{yy}$ at $(1, -1)$ when

$$f(x, y) = \frac{2}{xy} + 3x^2 + 4y^2.$$

1. $(f_{xx} + f_{yy})\Big|_{(1,-1)} = 5$

2. $(f_{xx} + f_{yy})\Big|_{(1,-1)} = 7$

3. $(f_{xx} + f_{yy})\Big|_{(1,-1)} = 6$

4. $(f_{xx} + f_{yy})\Big|_{(1,-1)} = 23$

5. $(f_{xx} + f_{yy})\Big|_{(1,-1)} = 22$

CalC16b19a

60:01, calculus3, multiple choice, > 1 min, wording-variable.

021

Evaluate the integral, I, of the function

$$f(x, y) = 2xe^{2xy}$$

over the rectangle

$$A = \{(x, y) : 0 \le x \le 3,\ 0 \le y \le 2\}.$$

1. $I = \frac{1}{4}\left(e^{12} - 11\right)$

2. $I = \frac{1}{8}\left(e^{12} - 13\right)$

3. $I = \frac{1}{8}\left(e^{12} - 11\right)$

4. $I = \frac{1}{8}\left(e^{12} - 12\right)$

5. $I = \frac{1}{4}\left(e^{12} - 13\right)$

6. $I = \frac{1}{4}\left(e^{12} - 12\right)$

CalC16c30a

60:02, calculus3, multiple choice, < 1 min, normal.

022

Evaluate the double integral

$$I = \int\int_D \frac{2}{(1 + x + y)^{3/2}}\, dA$$

when D is the region in the first quadrant bounded by

$$y = 3x + 3, \qquad x = 3$$

as well as the x and y-axes.

1. $I = 7$

2. $I = 4$

3. $I = 6$

4. $I = 5$

5. $I = 8$

CalC16c40s

60:02, calculus3, multiple choice, < 1 min, wording-variable.

023

Reverse the order of integration in the integral

$$I = \int_{-2}^{1} \left(\int_{-\sqrt{y+2}}^{0} f(x, y)\, dx \right) dy,$$

but make no attempt to evaluate either integral.

1. $I = \displaystyle\int_{-\sqrt{3}}^{0} \left(\int_{x^2-2}^{1} f(x, y)\, dy \right) dx$

2. $I = \displaystyle\int_{0}^{\sqrt{3}} \left(\int_{x^2-2}^{1} f(x, y)\, dy \right) dx$

3. $I = \displaystyle\int_{0}^{\sqrt{3}} \left(\int_{1}^{x^2-2} f(x, y)\, dy \right) dx$

4. $I = \displaystyle\int_{-\sqrt{3}}^{0} \left(\int_{1}^{x^2+2} f(x, y)\, dy \right) dx$

5. $I = \displaystyle\int_{-\sqrt{3}}^{0} \left(\int_{x^2+2}^{1} f(x, y)\, dy \right) dx$