

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

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**001 10.0 points**

Find the value of the integral

$$I = \int \int_A (3x^2 - y^2) dx dy$$

when

$$A = \left\{ (x, y) : 0 \leq y \leq 2x, 0 \leq x \leq 2 \right\}.$$

1.  $I = \frac{41}{3}$
2.  $I = \frac{83}{6}$
3.  $I = \frac{40}{3}$
4.  $I = \frac{27}{2}$
5.  $I = 14$

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**002 10.0 points**

Evaluate the double integral

$$I = \int \int_D (4x - 3y) dy dx$$

where  $D$  is the region bounded by the circle with center at the origin and radius 2.

1.  $I = 1$
2.  $I = -3$
3.  $I = -2$
4.  $I = -1$
5.  $I = 0$

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**003 10.0 points**

Evaluate the double integral

$$I = \int \int_A (3x - y) dx dy$$

when  $A$  is the region enclosed by the graphs of

$$x = 1, \quad x - y = 1, \quad y = 1.$$

1.  $I = 1$
2.  $I = \frac{5}{3}$
3.  $I = \frac{2}{3}$
4.  $I = \frac{4}{3}$
5.  $I = 2$

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**004 10.0 points**

Evaluate the double integral

$$I = \int \int_D (2x + 3) dA$$

when  $D$  is the bounded region enclosed by  $y = x$  and  $y = x^2$ .

1.  $I = \frac{1}{3}$
2.  $I = \frac{1}{2}$
3.  $I = \frac{2}{3}$
4.  $I = \frac{5}{6}$
5.  $I = 1$

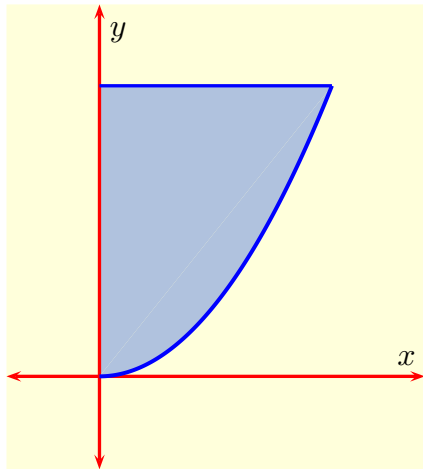
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**005 10.0 points**

Evaluate the double integral

$$I = \int \int_A \frac{4x}{1 + y^2} dy dx$$

when  $A$  is the shaded region in



enclosed by the graphs of

$$y = x^2, \quad x = 0, \quad y = 1.$$

1.  $I = \ln 2$
2.  $I = \ln 3$
3.  $I = \frac{1}{2} \ln 6$
4.  $I = \ln 6$
5.  $I = \frac{1}{2} \ln 3$
6.  $I = \frac{1}{2} \ln 2$