GROUP QUIZ 4 QUESTIONS

Write each area as a SINGLE integral. <u>DO NOT WRITE AS A SUM OR DIFFERENCE OF INTEGRALS.</u> <u>DO NOT EVALUATE THE INTEGRALS.</u>

- [a] the area bounded by $y = \sqrt{x}$, $y = 2\sqrt{x-3}$ and y = 0
- [b] the area bounded by $y = \ln 2x$, x = 0, y = 0 and y = 1

Write each volume using integrals. <u>DO NOT USE THE SHELL METHOD.</u> <u>DO NOT EVALUATE THE INTEGRALS.</u>

- [a] The region defined by $y \le 4 x^2$, $x \ge 0$ and $y \ge 0$ is revolved around
 - [i] y = 0

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- [ii] *x* = 0
- [b] The region bounded by $y = 4 x^2$ and 2x + y = 4 is revolved around
 - [i] *x* = -4
 - [ii] *y* = 4

Find the volume of the sphere of radius 3 centered at the origin by revolving the appropriate region around the *x*-axis. Write an integral for the volume, and evaluate it. **NOTE:** Since you already know the formula for the volume of a sphere, you will be judged primarily on your calculus work.

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