MA 224 - Quiz 10 Practice Problems

Feel free to work on these with classmates. These are just practice problems to help you guage how comfortable you are with the material—completely optional. The quiz will not be this long.

Note that this doesn't necessarily cover all the topics that the quiz can cover: it is intended to be just a review of a couple key things.

1. Set up the iterated integral for this double integral, BUT DO NOT EVALUATE:

$$\iint_R 48x^2y^2 \, \mathrm{d}A$$

   R is the region bounded by the lines $x = 0$, $y = 0$, $y = 10 - 2x$

2. Find the volume under the surface $z = 8xy$ above the region R bounded by the equations $y = (x - 1)$ and $y = \sqrt{x - 1}$.

Answers

Keep in mind there are other CORRECT ways to express these answers, but the answers I provide are likely to be the way the answers would appear on an exam.

1.

$$\int_0^5 \int_0^{10-2x} 48x^2y^2 \, \mathrm{d}y \, \mathrm{d}x$$

It is also correct to set it up with x on the inside:

$$\int_0^{10} \int_0^{-y/2+5} 48x^2y^2 \, \mathrm{d}x \, \mathrm{d}y$$

2.

$$\iint_R 8xy \, \mathrm{d}A$$

Can be set up as

$$\int_1^2 \int_{x-1}^{\sqrt{x-1}} 8xy \, \mathrm{d}y \, \mathrm{d}x$$

The answer is 1.