Name ______________________

1. (2 points) The graphs of $f(x) = x + 4$ and $g(x) = x^2 - 2$ are sketched below and the area between the two curves is shaded in. Compute the exact area of this shaded region.

![Graph of f(x) and g(x)]

2. (2 points) Given that the value of the definite integral $\int_{-2}^{3} f(x) \, dx$ is one of the choices below, determine which one.

![Graph of f(x)]

(a) 15  (b) 10  (c) 5  (d) 0  (e) -5
3. (2 points each) Sketch the region bounded by $y = \ln x$, $y = 2$, $y = 0$, and $x = 0$.

(a) Compute the area of this region.

(b) Revolve this region around the $y$-axis and compute its volume.

(c) Revolve this region around the $x$-axis and set up the integral or integrals needed to compute its volume.