FINAL EXAM (con't.)

3. A particle of mass m is in a 2-dimensional infinite square well; $V = 0$ $0 < x < a$ and $0 < y < a$, $V = \infty$ for $x < 0$ or $x > a$ or $y < 0$ or $y > a$.

   (a) Find the lowest energy eigenfunction $\phi(x, y)$.

   (b) What are the possible energies of the system?