Possibly Helpful Facts

Mass of atmosphere = $5.14 \cdot 10^{18}$ kg = $1.8 \cdot 10^{20}$ moles
H = 1, C = 12, N = 14, O = 16, S = 32 g/mole
Density of water: 1 t/m^3 = 1 kg/L = 1 g/mL
$S = \tau F$
$c = s/V$
$T_{2X} = \ln(2)/r = 0.69/r$
1 inch = 2.54 cm; 1 meter = 39.4 inches
1 pound = 0.454 kg
1 m^3 = 1000 liters
$pH = -\log_{10}[H^+]$

You have until 6:45 pm. I'll review the solutions at that time.

Quiz 4 Solution

$$\left[\frac{6\ g_{SO_4^{2-}}}{m^2 y}\right]\left[\frac{mole_{SO_4^{2-}}}{96\ g_{SO_4^{2-}}}\right]\left[\frac{2\ mole_{H^+}}{mole_{SO_4^{2-}}}\right]\left[\frac{y}{25\ in}\right]\left[\frac{39.4\ in}{m}\right]\left[\frac{m^3}{10^3\ L}\right]$$

$$\left[H^+\right] = 2 \cdot 10^{-4}\ \frac{mole_{H^+}}{L}$$

$$pH = -\log_{10}\left[H^+\right] = -\log_{10}\left[2 \cdot 10^{-4}\right] = -\left(-3.7\right) = 3.7$$

The actual average pH is substantially higher because much of the sulfate is dry-deposited in the dry season (Sep-Mar)