Answer on Question #75168, Chemistry / General Chemistry

How many grams of $CaCl_2$ are needed to make a solution with a concentration of 3.0 M from 2.25 kg of water?

A. 7.5 x 10^2 g $CaCl_2$

B. 7.50 kg $CaCl_2$

C. 7.50 × 10^{-2} kg $CaCl_2$

D. All of the Above

E. None of the Above

Solution

$C_m = \frac{\nu}{V}$; $\nu = C_m V$

$\nu(CaCl_2) = 3 \times 2.25 = 6.75(mole)$;

$m(CaCl_2) = \nu(CaCl_2) \times M(CaCl_2) = 6.75 \times 111 =$ **749.25 (g)**

Answer

A. 7.5 x 10^2 g $CaCl_2$