Pertaining to HVAC Practice Exams purchased before 9/29/2019:

12. The humidifier water mass flow rate (lb/hr) required to bring 10,000 CFM of 70°F air from 8 Gr/lb to 29 Gr/lb is most nearly:

(A) 141

(B) 942,480

(C) 1,800

(D) 135

12. The below equation can be used to find the mass flow rate of water required to elevate the humidity level of a given flow rate of air:

$$\dot{Q}_{humidifier\ H2O,\frac{lb}{hr}} = \rho_{air}(w_{out} - w_{in})\dot{Q}_{airflow,cfm}\left(60\frac{min}{hr}\right)$$

$$\dot{Q}_{humidifier\ H2O,lb/hr} = 0.0748\frac{lb}{ft^3} * \left(29\frac{Gr}{lb} - 8\frac{Gr}{lb}\right) * \frac{1}{7{,}000}\frac{lb}{Gr} * 10{,}000\frac{ft^3}{min}\left(60\frac{min}{hr}\right) = 134.6\frac{lb}{hr}$$

THE CORRECT ANSWER IS: D