

36.62 A pump delivers 250gpm and produces 125ft of head. The fluid being distributed has a density of $71 \frac{lb_m}{ft^3}$ and the pump is 80% efficient. What is the brake horsepower required to drive the pump?

- A. 9.0hp
- B. 9.9hp
- C. 11.2hp
- D. 25.9hp

Use the formula for **Brake HP**. The volume flow rate, head, and efficiency are given. Use the density of the fluid along with the standard density of water to determine the **Specific Gravity**, then solve for the *bhp*.

$$bhp = \frac{Q\Delta h \cdot SG}{3960\eta_p}$$

$$SG = \frac{\rho}{\rho_{water}} = \frac{71 \frac{lb_m}{ft^3}}{62.4 \frac{lb_m}{ft^3}} = 1.14$$

$$bhp = \frac{(250gpm)(125ft)(1.14)}{3960(0.8)} = 11.2hp$$

Answer C