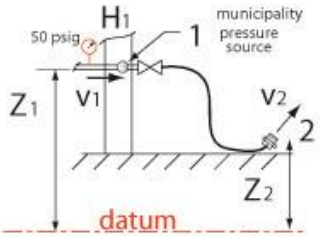
Calculation examples

pressure system



$h_P = 0$

$H_1 = 50 \times 2.31 = 115$ ft

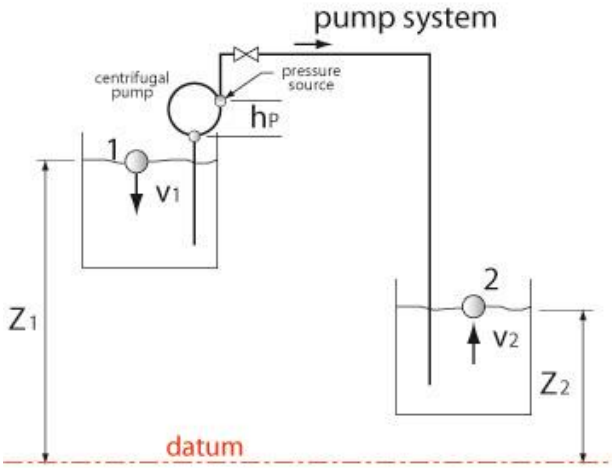
$H_2 = 0 \quad v_1 = v_2$

Goal: calculate v_2

$$\cancel{h_P} + Z_1 + H_1 + \cancel{\frac{v_1^2}{2g}} = \cancel{h_f} + Z_2 + \cancel{H_2} + \frac{v_2^2}{2g}$$

$$Z_1 + H_1 = h_f + Z_2 + \frac{v_2^2}{2g}$$

pump system



$H_1 = 0 \quad v_1 \simeq 0$

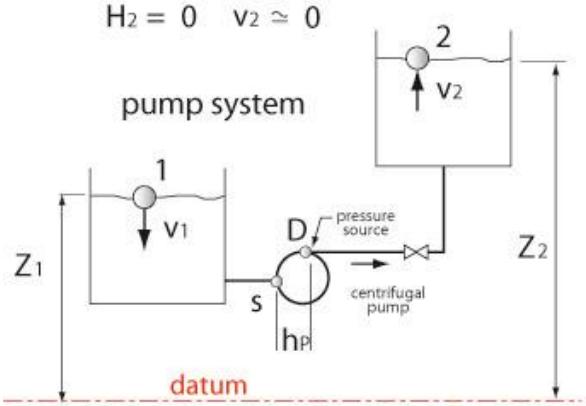
$H_2 = 0 \quad v_2 \simeq 0$

Goal: calculate h_P

$$h_P + \cancel{H_1} + Z_1 + \cancel{\frac{v_1^2}{2g}} = h_f + Z_2 + \cancel{H_2} + \cancel{\frac{v_2^2}{2g}}$$

$$h_P + Z_1 = h_f + Z_2$$

pump system



$H_1 = 0 \quad v_1 \simeq 0$

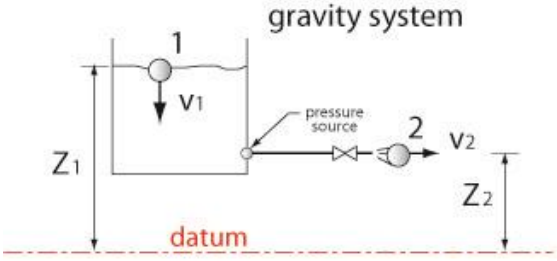
$H_2 = 0 \quad v_2 \simeq 0$

Goal: calculate h_P

$$h_P + \cancel{H_1} + Z_1 + \cancel{\frac{v_1^2}{2g}} = h_f + Z_2 + \cancel{H_2} + \cancel{\frac{v_2^2}{2g}}$$

$$h_P + Z_1 = h_f + Z_2$$

gravity system



$H_1 = 0 \quad v_1 \simeq 0$

$H_2 = 0 \quad h_P = 0$

Goal: calculate v_2

$$\cancel{h_P} + \cancel{H_1} + Z_1 + \cancel{\frac{v_1^2}{2g}} = h_f + Z_2 + \cancel{H_2} + \frac{v_2^2}{2g}$$

$$Z_1 = h_f + Z_2 + \frac{v_2^2}{2g}$$