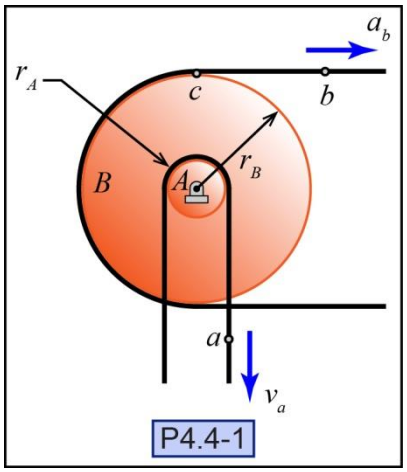
P4.4-1) The belt-driven pulley system shown has a smaller pulley (r_A = 3 in) rigidly attached to a larger pulley (r_B = 12 in). The belt speed of the smaller pulley is 4 ft/s and the belt acceleration of the larger pulley is 0.5 ft/s^2. Determine the angular velocity and acceleration of the pulley system. Also, determine the belt speed of the larger pulley and the acceleration of point c located on the rim of the larger pulley.



P4.4-1

Given:

Find:

Solution:

Calculate the angular speed of the pulley system.

ω = _____

Calculate the angular acceleration of the pulley system.

α = _____

Calculate the speed of the belt for the larger pulley.

v_b = _____

Calculate the acceleration of point *c*.

$\mathbf{a}_c$ = _____