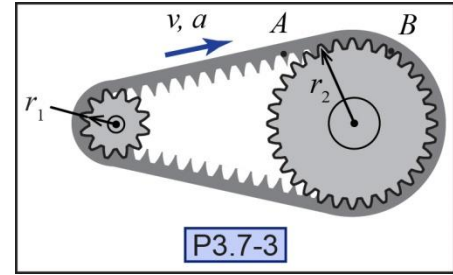


P3.7-3) In the given figure, a small gear ($r_1 = 50$ mm) drives a larger gear ($r_2 = 150$ mm) via a belt. If the belt speed is initially 1 m/s at $t = 0$ seconds and it is accelerating uniformly at 0.5 m/s², determine the acceleration magnitudes of point A and point B at $t = 2$ seconds.



Given:

Find:

Solution:

Calculate the belt speed at 2 seconds.

What is the initial speed of the belt?

$v_o =$ _____

What is the tangential acceleration of the belt?

$a_t =$ _____

What is the speed of the belt at 2 seconds?

$v_{t=2} =$ _____

Calculate the acceleration of point A at 2 seconds.

Write the acceleration equation in terms of $n-t$ coordinates.

$\mathbf{a}_A =$ _____

$a_A =$ _____

Calculate the acceleration of point B at 2 seconds.

Write the acceleration equation in terms of $n-t$ coordinates.

$\mathbf{a}_B =$ _____

$a_B =$ _____