**P5.1-3)^{fe}** The 250,000-kg jetliner shown is traveling in the x-direction with a speed of 200 m/s at the instant shown. If the jetliner experiences a lift force L = 3000 kN, a drag force D = 100 kN and a thrust force T = 600 kN in the directions shown, determine the magnitude of the jetliner's acceleration at this instant when the plane's attitude is θ = 10° and its angle of attack is α = 15°.

Given:

P5.1-3
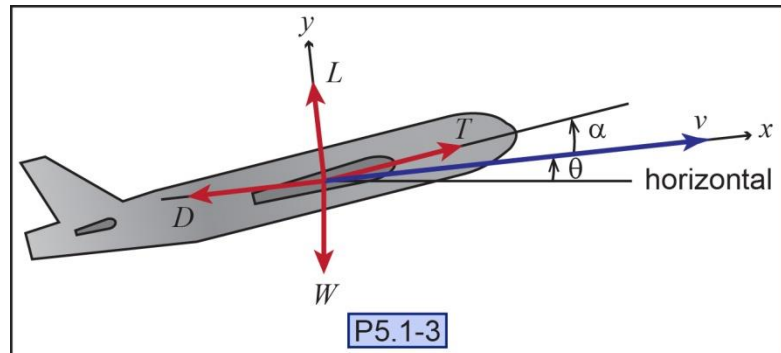
Find:

Solution:

Equation of motion

Write down the plane's equation of motion in the x-direction.

Write down the plane's equation of motion in the y-direction.

Find the plane's x-acceleration.

Find the plane's y-acceleration.

$a_x = $ _____

$a_y = $ _____