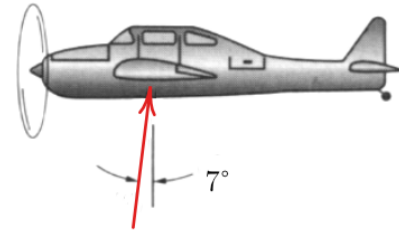
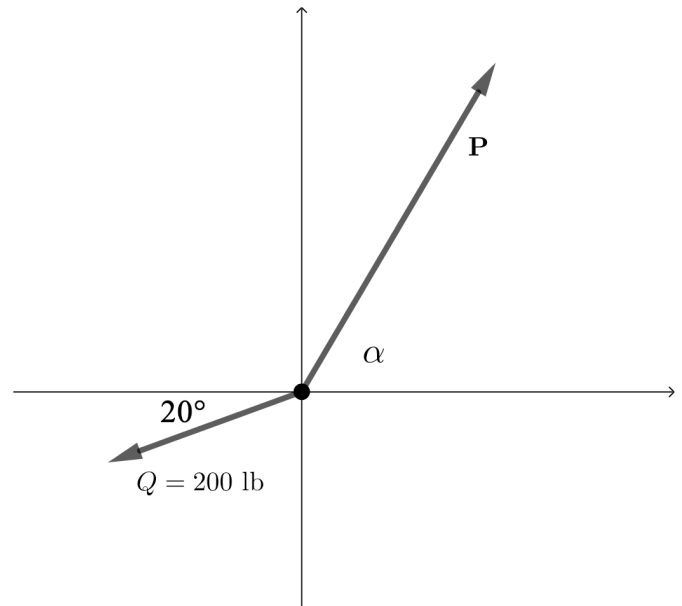


The aerodynamic force acting on the aircraft has a magnitude of 8000 lb acting as shown. Resolve this force into vertical (lift) and horizontal (drag) forces.



A 250 lb force **R** acts straight up, and has components **P** and **Q**. Determine the magnitude  $P$  and direction  $\alpha$  of component **P**.



Two tugboats are pulling a ship with 5000 MN forces in the directions shown.

Draw a scaled parallelogram of the forces, then determine the magnitude and direction of the net force on the ship.

