100 m

Vc=16m/s

15 degrees

The launch catapult of an aircraft carrier gives the 7Mg jet airplane gives the airplane a constant acceleration and launches the airplane in a distance of 100 m measured along the angled takeoff ramp. The carrier is moving at a constant speed of 16 m/s. If an absolute airplane speed of 90 m/s is required for takeoff determine the net force supplied by the catapult and the aircraft engines.