Answer on Question # 83022, Physics / Mechanics | Relativity

Question 1. *If the force that propels the cannonball forward is* $500\,N$*, how much force will move the cannon backward?*

Solution. The Newton's third law states that all forces between two objects exist in equal magnitude and opposite direction: if one object A exerts a force F_A on a second object B, then B simultaneously exerts a force F_B on A, and the two forces are equal in magnitude and opposite in direction: $F_A = -F_B$. So, the force against the cannon will be the same as the force with which the cannonball is forced out and equal $F = 500\,N$. □