Newton's 3rd Law

Suppose you are an astronaut in outer space giving a brief push to a spacecraft whose mass is bigger than your own.

1) Compare the magnitude of the force you exert on the spacecraft, F_S, to the magnitude of the force exerted by the spacecraft on you, F_A, while you are pushing:

1. $F_A = F_S$
2. $F_A > F_S$ ⟵ correct
3. $F_A < F_S$

Third Law!

2) Compare the magnitudes of the acceleration you experience, a_A, to the magnitude of the acceleration of the spacecraft, a_S, while you are pushing:

1. $a_A = a_S$
2. $a_A > a_S$ ⟵ correct
3. $a_A < a_S$

a=F/m

F same ⇒ lower mass give larger a