Weight on the moon

A woman has a mass of 55.0 kg.

(a) What is her weight on earth?

(b) What are her mass and her weight on the moon, where \( g = 1.62 \text{ ms}^{-2} \)?

Solution:

(a) On earth

\[ W = m g = 55.0 \times 9.8 = 539 \text{ N} \]

(b) On moon, her mass remains the same, but the acceleration due to gravity is different, so

\[ W = m g_m = 55.0 \times 1.62 = 89.1 \text{ N} \]