20. A force of magnitude 7.50 N pushes three boxes with masses \( m_1 = 1.30 \text{ kg}, \ m_2 = 3.20 \text{ kg}, \) and \( m_3 = 4.90 \text{ kg}, \) as shown in Figure 5–19. Find the magnitude of the contact force (a) between boxes 1 and 2, and (b) between boxes 2 and 3.

\[
F = Ma
\]

\[
a = \frac{F}{m} = \frac{7.5}{1.3 + 3.2 + 4.9} = 0.798 \frac{\text{m}}{\text{s}^2}
\]

(a) 1.3 and 2

\[
F_1 = m_1a
\]

\[
= 1.3 \times 0.798 = 1.04 \text{ N}
\]

(b) 2 and 3

\[
F_2 = m_3a
\]

\[
= 4.9 \times 0.798 = 3.91 \text{ N}
\]