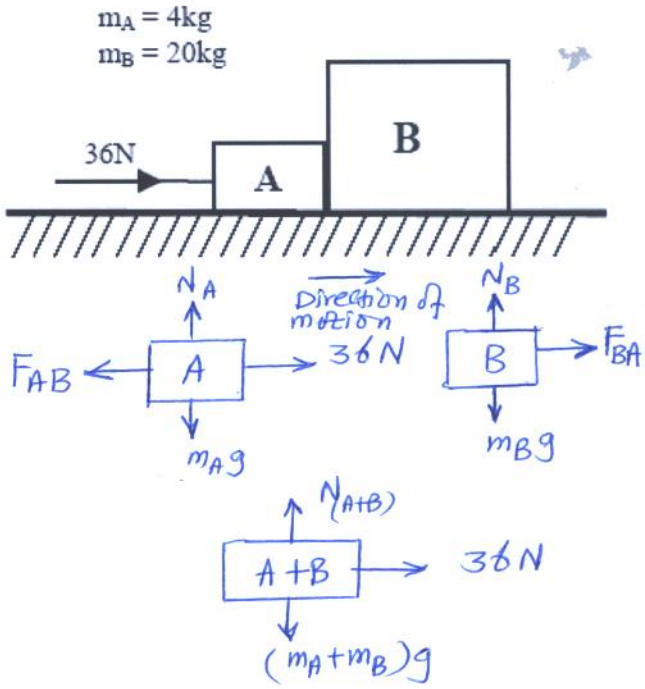
Physics 101- Chapter 6
Quiz No. 3

Name: Key	ID:	Sec: 30

Two blocks A (M_A = 4 kg) and B (M_B = 20 kg) are in contact with each other and are placed on a horizontal frictionless surface. A 36 N constant force is applied to A as shown in the figure. Calculate the magnitude of the force exerted on A by B.



Two blocks as one object:

$F = (m_A + m_B)\, a$

$36 = (4+20)a$

$a = \frac{3}{2}\ m/s^2$

Motion formula of block b:

$F_{BA} = m_B a$

$F_{BA} = \frac{3}{2} \times 20 = 30\ N$

But $\vec{F}_{AB} = -\vec{F}_{BA}$

$\therefore\ F_{AB} = 30\ N$