32. The phrase "loosely bolted" means that there is no torque exerted by the bolt at that point (where A connects with B). The force exerted on A at the hinge has x and y components F_x and F_y. The force exerted on A at the bolt has components G_x and G_y and those exerted on B are simply $-G_x$ and $-G_y$ by Newton's third law. The force exerted on B at its hinge has components H_x and H_y. If a horizontal force is positive, it points rightward, and if a vertical force is positive it points upward.

(a) We consider the combined $A \cup B$ system, which has a combined weight of Mg where $M = 122$ kg and the line of action of that downward force of gravity is $x = 1.20$ m from the wall. The vertical distance between the hinges is $y = 1.80$ m. We compute torques about the bottom hinge and find

$$F_x = -\frac{Mgx}{y} = -797 \text{ N} .$$

If we examine the forces on A alone and compute torques about the bolt, we instead find

$$F_y = \frac{m_A g x}{\ell} = 265 \text{ N}$$

where $m_A = 54.0$ kg and $\ell = 2.40$ m (the length of beam A).

(b) Equilibrium of horizontal and vertical forces on beam A readily yields $G_x = -F_x = 797\,\text{N}$ and $G_y = m_A g - F_y = 265\,\text{N}$.

(c) Considering again the combined $A \cup B$ system, equilibrium of horizontal and vertical forces readily yields $H_x = -F_x = 797\,\text{N}$ and $H_y = Mg - F_y = 931\,\text{N}$.

(d) As mentioned above, Newton's third law (and the results from part (b)) immediately provide $-G_x = -797\,\text{N}$ and $-G_y = -265\,\text{N}$ for the force components acting on B at the bolt.