

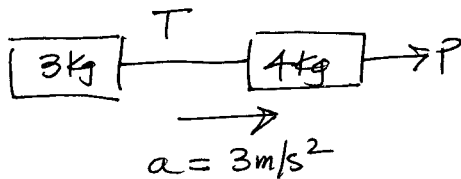
Newton's Laws Problems — Solutions

1. $F = ma$

$$20 = (0.1)a$$

$$\boxed{a = 200 \text{ m/s}^2}$$

2.



To find P , consider the combined mass = 7 kg.

$$\Sigma F = ma$$

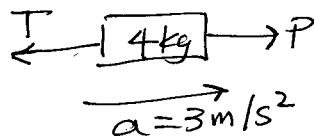
$$P = (7)(3) = \boxed{21 \text{ N}}$$

To find T , consider 3 kg mass

$$\Sigma F = ma$$

$$T = (3)(3) = \boxed{9 \text{ N}}$$

check:



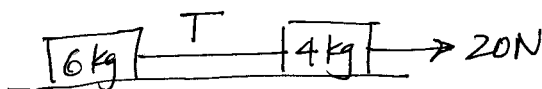
$$\Sigma F = ma$$

$$P - T = ma$$

$$21 - 9 \stackrel{?}{=} 4(3)$$

$$12 = 12 \checkmark$$

3.



consider the combined mass = 10 kg:

$$\Sigma F = ma$$

$$20 = 10a$$

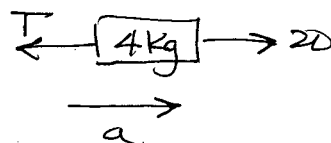
$$a = 2 \text{ m/s}^2$$

consider the 6 kg mass:

$$\Sigma F = ma$$

$$T = 6(2) = \boxed{12 \text{ N}}$$

check:



$$\Sigma F = ma$$

$$20 - 12 \stackrel{?}{=} 4(2)$$

$$8 = 8 \checkmark$$