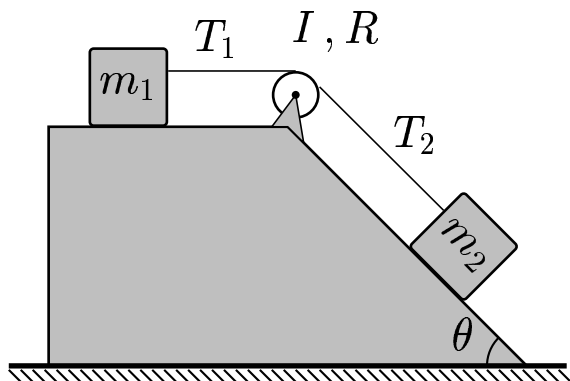


Blocks with masses  $m_1$  and  $m_2$  are connected by a string, which passes over a pulley which has a radius  $R$  and the moment of inertial  $I$ .



The acceleration of the two masses is  $a$ , and the pulley is constrained to rotate clockwise with the rotational equation of motion of the pulley given by

- A)  $(T_1 - T_2) R = \frac{I a}{R}$ .
- B)  $(T_2 - T_1) R = \frac{I a}{R}$ .
- C)  $(T_1 - T_2) R = I a$ .
- D)  $(T_2 - T_1) R = I a$ .

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The rotational equation of motion is given by  $\tau = I \alpha = I \frac{a}{R}$ .

Since  $m_2$  is descending and the pulley is rotating in a clockwise manner,  $T_2$  is greater than  $T_1$ .

Answer **B**.