# QUIZ / Mechanics - Torque

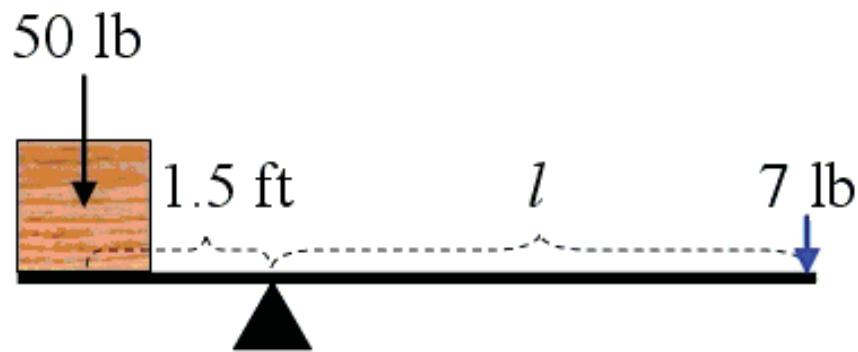NAME                                          DATE                    CLASS PERIOD

*Put a check ✓ in the O next to the correct answer.*

1. **You attach a 10 inch arm to your robot using a motor to raise and lower the arm. The motor can produce 7 ft·lb of torque. You hook and attempt to lift an 8 lb box. Can you lift it?**

    o **Yes, 6.67 ft•lb of torque is required**

    o **Yes, 0.86 ft•lb of torque is required**

    o **No, 14 ft•lb of torque is required**

    o **No, 80 ft•lb of torque is required**

    o **No, 5.83 ft•lb of torque is required**

2. **Find the value of *l*, the length of the right side of the lever, for which the 7 lb will hold the 50 lb steadily. Select the best answer for *l*.**



    o **10.7 ft**
    o **22 ft**
    o **75 ft**
    o **3.5 ft**
    o **7.1 ft**

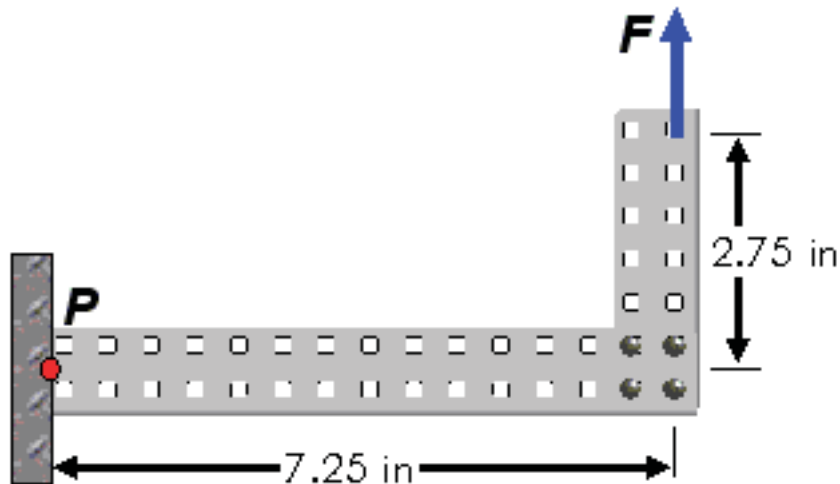## QUIZ / Mechanics - Torque

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3.  **Force *F* will cause what kind of moment about point P?**



   o **Positive moment**

   o **Negative moment**

   o **Centrifical moment**

   o **Forced moment**

4.  **A torque only tightens, it never loosens.**

   o **True**

   o **False**

5.  **When an object is in static equilibrium, then we know the sum of all the moments due to external forces on the object, summed at a point P is ...**

   o **Equal to zero**

   o **Equal to the sum of moments due to internal forces**

   o **Doesn't exist**

   o **Equal to the objects mass moment of inertia**

   o **Equal to the sum of the external forces**
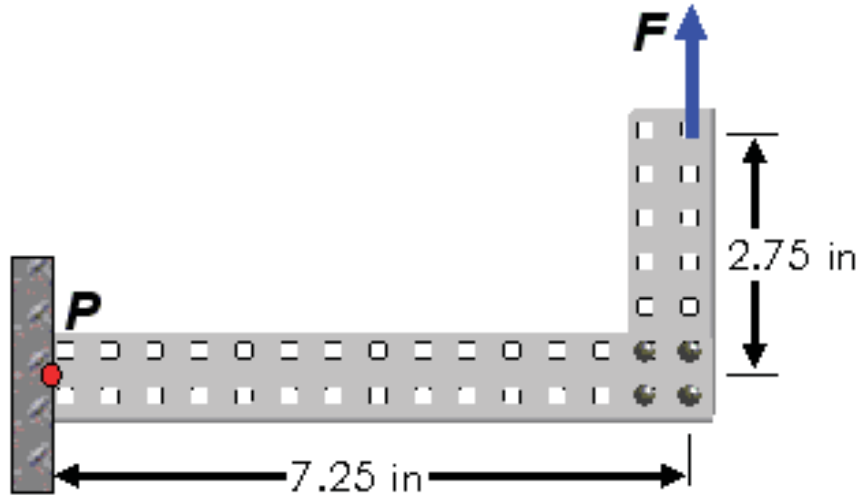
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6. **Force F is 10 pounds. What is the magnitude of the moment due to *F* about point P?**



     o **72.5 in•lb**

     o 72.5 ft•lb

     o 27.5 in•lb

     o 27.5 ft•lb

     o 77.5 in•lb

7. **The perpendicular distance, *d*, in the torque equation must always be measured in feet in the U.S. customary system, or meters in the metric system.**

     o True

     o **False**

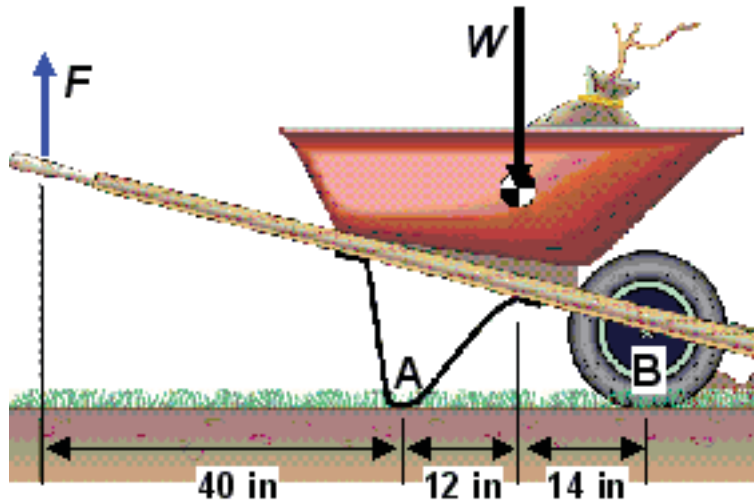## QUIZ / Mechanics - Torque

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8.  **The wheelbarrow is loaded. Forces exist for weight *W*, lift *F*, and normal reactions at points A and B, *A* and *B*. Which forces contribute to the moment about the axel of the wheel?**



- o **F,W,A**
- o *F,W,A,B*
- o *F,W*
- o *F,W,B*
- o None

9.  **Which of the following represents a unit of torque?**

    - o Slugs
    - o **Foot•pounds (ft•lb)**
    - o Feet / second•(ft/s)
    - o Newtons
    - o Fathoms

10. **The wheelbarrow in 8., above, has been lifted. Force F is 50 pounds, and weight W is 70 pounds. What is the net moment about the axel of the wheel due to those two forces?**

    - o **2320 in•lb clockwise**
    - o 2320 ft•lb counter-clockwise
    - o 3300 in•lb clockwise
    - o 4280 in•lb counter-clockwise
    - o 4280 in•lb clockwise