

1. A 31kg crate in a warehouse is lifted 3.4m in the air by a forklift and placed on a shelf in a time of 3.8seconds. What work was done on the box by the forklift?
2. If the mass of the crate were tripled, and nothing else was changed, how much work would be required to lift the crate?
3. If the height of the shelf was halved, and nothing else was changed, how much work would be required to lift the crate?
4. If the time taken to lift the crate was doubled, and nothing else was changed, how much work would be required to lift the crate?
5. If the forklift lifted the crate to the height of the shelf and put it back on the ground, what is the work done by the forklift?

Solution

1.  $A = mgh = 31 * 9.8 * 3.4 = 1032,92 J$
2.  $A_1 = 3mgh = 3A = 3098,76$
3.  $A_2 = mg \frac{1}{2}h = \frac{1}{2}A = 516,46$
4.  $A = mgh = 31 * 9.8 * 3.4 = 1032,92 J$  work would be required to lift the crate doesn't depend on time
5.  $A=0=mgh-mgh$