

### F:(8 pts) Lifting Power

A mass ( $m = 3kg$ ) must be lifted at constant speed upward against the pull of gravity by an external force  $F$ . The mass must rise from the ground to a height  $h = 12m$  in a time interval  $t = 6s$ . How much power  $P$  is required for the force to do this? How much work  $W$  must be done by the force?

•(4pts)  $P =$  \_\_\_\_\_

•(4pts)  $W =$  \_\_\_\_\_

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•(4pts)  $P = \underline{58.8 \text{ W}}$

•(4pts)  $W = \underline{353 \text{ J}}$

$$W = mgh = \boxed{352.8 \text{ J}}$$

$$P = \frac{W}{\Delta t} = \boxed{58.8 \text{ W}}$$