Power

5. A car *1600 kg* is traveling down the road at *20 m/*s. If the car accelerates up to *30 m/s* over a distance of *200 m* then a) How much *work* is done by the car? b) How much *power* is exerted by the car, in *watts* and *horsepower*? ***A: a) $8 \cdot 10^5$ J. b) $2 \cdot 10^5$ w, 268 hp.***

6. After accelerating, the car mentioned in the previous problem now locks the brakes and skids to a stop in *300 m*. a) How much *work* is done by the brakes? b) How much *power* is exerted by the car's brakes? ***A: a) - $1.44 \cdot 10^6$ J. b) $1.44 \cdot 10^5$ w***

7. What *average power* must a crane deliver in order to raise a *150 kg girder* through *70 m* in *20 s* at a constant speed? ***A.: 5145 w.***