

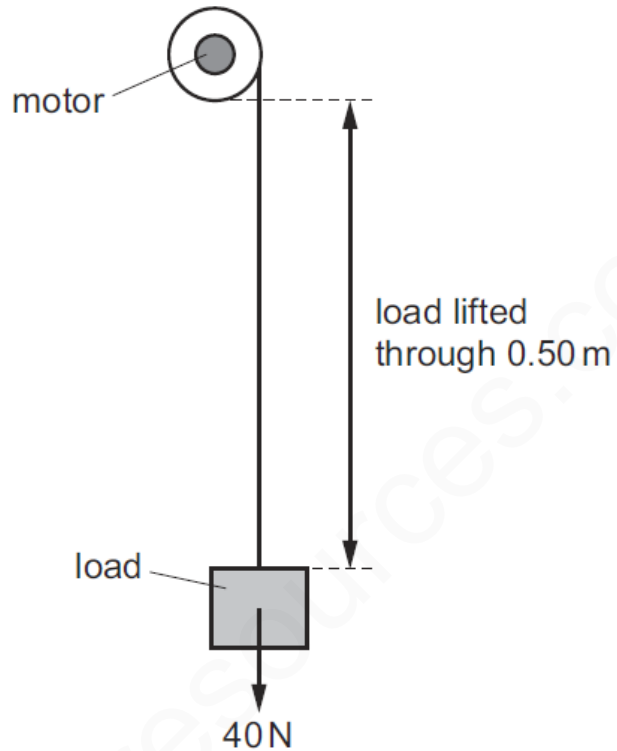
## POWER-SET-2

1	<p>A girl hangs by her hands from a bar in the gymnasium. She pulls herself up until her chin is level with the bar.</p> <p>The mass of the girl is 48 kg.</p> <p>She pulls herself up through a distance of 0.25 m.</p> <p>She does this in 2.0 s.</p> <p>What is the useful power she uses to pull herself up?</p> <p><b>A</b> 6.0W      <b>B</b> 24W      <b>C</b> 60W      <b>D</b> 240W</p>
MS-1	C
2	<p>A crane on a construction site lifts concrete beams.</p> <p>The useful work done by the crane is 4000 kJ in a time of 160 s.</p> <p>What is the useful output power of the crane?</p> <p><b>A</b> 0.04 kW      <b>B</b> 25W      <b>C</b> 25kW      <b>D</b> 640kW</p>
MS-2	C
3	<p>A large electric motor is used to lift a container off a ship.</p> <p>Which of the following values are enough to allow the power of the motor to be calculated?</p> <p><b>A</b> the mass of the container and the distance moved</p> <p><b>B</b> the force used and the distance moved</p> <p><b>C</b> the current used and the work done</p> <p><b>D</b> the work done and the time taken</p>
MS-3	10

4	<p>The table shows the times taken for four children to run up a set of stairs.</p> <p>Which child's power is greatest?</p> <table border="1" data-bbox="288 353 991 658"> <thead> <tr> <th></th> <th>mass of child / kg</th> <th>time / s</th> </tr> </thead> <tbody> <tr> <td><b>A</b></td> <td>40</td> <td>10</td> </tr> <tr> <td><b>B</b></td> <td>40</td> <td>20</td> </tr> <tr> <td><b>C</b></td> <td>60</td> <td>10</td> </tr> <tr> <td><b>D</b></td> <td>60</td> <td>20</td> </tr> </tbody> </table>		mass of child / kg	time / s	<b>A</b>	40	10	<b>B</b>	40	20	<b>C</b>	60	10	<b>D</b>	60	20
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<b>A</b>	40	10														
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<b>D</b>	60	20														
MS-4	C															
5	<p>What is the unit of electrical power?</p> <p><b>A</b> ampere</p> <p><b>B</b> joule</p> <p><b>C</b> volt</p> <p><b>D</b> watt</p>															
MS-5	D															

6

A motor is used to lift a load of 40 N.



The power of the motor is 40 W and the system is 20% efficient.

How long does it take the motor to lift the load through 0.50 m?

MS-6

B

7

The table gives data for four different electrical devices.

Which device develops the greatest power?

	device	voltage	current
<b>A</b>	car headlight	12 V	3.0 A
<b>B</b>	cooling fan	110 V	0.40 A
<b>C</b>	electric spark generator	400 kV	0.10 mA
<b>D</b>	mains lamp	240 V	0.20 A

MS-7

D

8	<p>A car is moving along a straight horizontal road. The car has 1.6 MJ of kinetic energy. The car accelerates for 20 s until the kinetic energy of the car increases to 2.5 MJ.</p> <p>What is the minimum average power developed by the car engine for this acceleration?</p> <p><b>A</b> 45 W      <b>B</b> 205 W      <b>C</b> 45 kW      <b>D</b> 205 kW</p>
MS-8	C