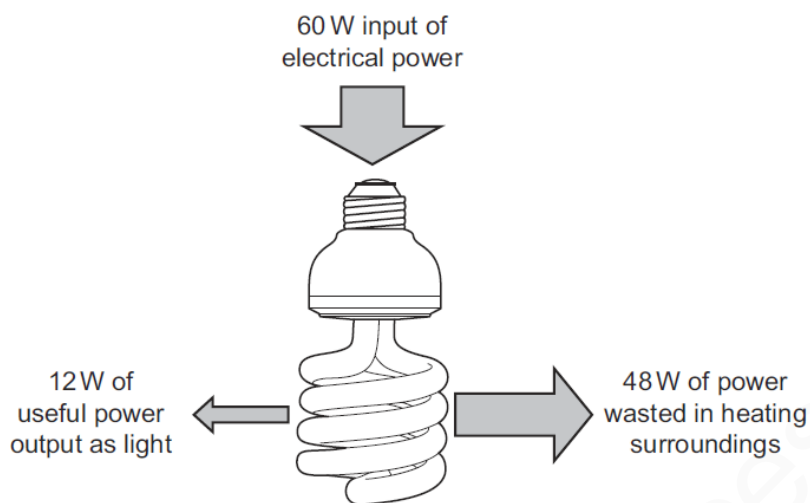


EFFICIENCY-SET-1

1	<p>A certain machine is very efficient.</p> <p>What does this mean?</p> <p>A It produces a large amount of power.</p> <p>B It uses very little energy.</p> <p>C It wastes very little energy.</p> <p>D It works very quickly.</p>
2	<p>Some processes are more efficient than others.</p> <p>Which expression gives the efficiency of a process?</p> <p>A $\frac{\text{total energy output}}{\text{total energy input}} \times 100\%$</p> <p>B $\frac{\text{useful energy output}}{\text{total energy input}} \times 100\%$</p> <p>C $\frac{\text{wasted energy output}}{\text{total energy input}} \times 100\%$</p> <p>D $\frac{\text{wasted energy output}}{\text{useful energy output}} \times 100\%$</p>

3

The diagram shows the energy used by a modern lamp.

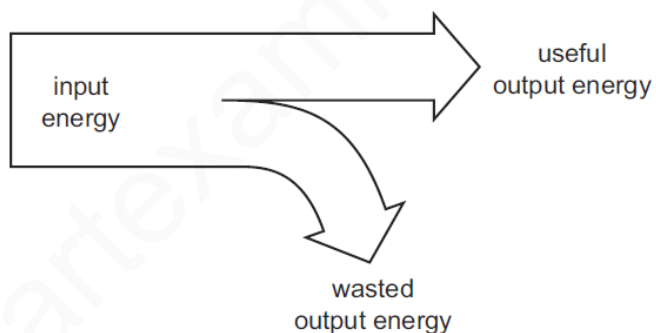


Which expression gives the efficiency of the lamp?

- A** $\frac{12}{60} \times 100\%$ **B** $\frac{12}{48} \times 100\%$ **C** $\frac{48}{60} \times 100\%$ **D** $\frac{48}{12} \times 100\%$

4

The diagram represents the energy transfers for a device.



The device is 50% efficient.

Which equation is correct?

- A** input energy = useful output energy \div 2
B useful output energy = wasted output energy \div 2
C wasted output energy = useful output energy
D wasted output energy = useful output energy \div 2

5	<p>A lamp has a power input of 5.0 W. It wastes 1.0 W of power heating the surroundings.</p> <p>What is the efficiency of the lamp?</p> <p>A 20% B 50% C 80% D 120%</p>															
6	<p>Different processes have different efficiencies.</p> <p>Which row shows the most efficient process?</p> <table> <tr> <th></th><th>energy input / J</th><th>useful energy output / J</th></tr> <tr> <td>A</td><td>10</td><td>3</td></tr> <tr> <td>B</td><td>40</td><td>10</td></tr> <tr> <td>C</td><td>100</td><td>25</td></tr> <tr> <td>D</td><td>2000</td><td>250</td></tr> </table>		energy input / J	useful energy output / J	A	10	3	B	40	10	C	100	25	D	2000	250
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7	<p>A 150 W filament lamp has an efficiency of 10%. A 40 W compact fluorescent lamp (CFL) has an efficiency of 30%.</p> <p>Each lamp is switched on for the same amount of time.</p> <p>Which lamp produces more light and which lamp converts more energy into other forms of energy?</p> <table> <tr> <th></th><th>produces more light</th><th>converts more energy into other forms</th></tr> <tr> <td>A</td><td>CFL lamp</td><td>CFL lamp</td></tr> <tr> <td>B</td><td>CFL lamp</td><td>filament lamp</td></tr> <tr> <td>C</td><td>filament lamp</td><td>CFL lamp</td></tr> <tr> <td>D</td><td>filament lamp</td><td>filament lamp</td></tr> </table>		produces more light	converts more energy into other forms	A	CFL lamp	CFL lamp	B	CFL lamp	filament lamp	C	filament lamp	CFL lamp	D	filament lamp	filament lamp
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