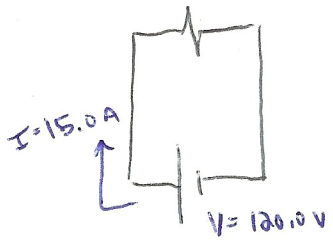
Kilowatt-Hour

Example 3:
An electric heater draws 15.0 A on a 120.0 v circuit. How much will it cost to operate this heater for a month (30 days) if the heater runs for 3.00 hours a day while the electric company charges 10.5 cents per kilowatt hour?



$P = I \cdot V$

$P = (15.0)(120.0)$

$P = 1800$ W

$P \approx 1.80$ kilowatts

time:
3.0 hours each day
for 30 days
$t = (3.0)(30) = 90$ hours

energy consumed $= P \cdot t$
(P: kilowatt, t: hour)

energy consumed $= (1.80)(90.0)$

energy consumed $= 162$ kilowatt hours

each kilowatt hour costs 10.5 cents or 0.105 of a dollar

$\text{Cost} = (162)(0.105)$

$\text{Cost} = 17.01$

$\text{Cost} \approx \$17.01$