Proportionality Sheet

6. $C \propto TR^2$

$C = kTR^2$

$k = \dfrac{C}{TR^2}$

$k = \dfrac{\$7.20}{(8\text{cm})(12\text{cm})^2}$

$k = \$0.00625 / \text{cm}^3$

$C = \left(\$0.00625/\text{cm}^3\right)TR^2$

$C = \left(\$0.00625/\text{cm}^3\right)(12\text{cm})(15\text{cm})^2$

$\boxed{C = \$16.88}$

9. $P \propto w^3$

$P = kw^3$

$k = \dfrac{P}{w^3}$

$k = \dfrac{(150\text{ watts})}{(16\text{km/h})^3}$

$k \doteq 0.0366 \dfrac{\text{watts}}{\text{km}^3/\text{h}^3}$

$P = kw^3$

$P = 0.0366\left(9\,\text{km/h}\right)^3$

$P = 27\text{ watts}$