

**Algebra 1 Investigative Task 3**  
*Chapter 1*

Name \_\_\_\_\_

Frank lives in the Midwest and wants to save money on his bills. Frank is considering installing solar panels and/or wind turbines to help provide electricity to his house.

The function to describe the cost of electricity during peak hours is shown below:

$$c(h) = \$0.12h \quad \text{where } h \text{ is the kilowatt hours.}$$

1. Find the cost for 600, 800, and 1000 kilowatt hours.
2. The average household in Ohio uses 900 kilowatt hours per month. Find the average electricity bill in Ohio.
3. Frank uses the average amount of electricity and is considering a solar panel kit that will provide 1.2 kilowatt hours per day and will cost \$1,400. Find the amount of kilowatt hours the panel will produce in 1 month (30 days).
4. How many of these kits will Frank need to purchase to provide for all his electrical needs and how much will this cost?
5. How long will Frank need to use the solar panel kits before he begins to save money over the standard electrical charges from the electric company?
6. Frank is also considering a wind turbine that will provide 650 kilowatt hours per month and will cost \$8,000. How much will the wind turbine lower the monthly electric bill of the average user (900 kWh per month)?
7. How long will Frank need to use the wind turbine before he begins to save money over the standard electrical charges from the electric company?
8. Frank wants a combination of 1 wind turbine and X sets of solar panels to cover all of his electrical needs. How many solar panels are needed and how long will it take for this combined system to pay for itself?