

Worksheet on Newton's Law of Cooling

1. When an object is removed from a furnace and placed in an environment with a constant temperature of $90^\circ F$, its core temperature is $1500^\circ F$. One hour later, the core temperature is $1120^\circ F$. Find the core temperature 5 hours after the object is removed from the furnace.

2. A cup of coffee is poured from a pot whose contents are $95^\circ C$ into a non-insulated cup in a room at $20^\circ C$. After a minute, the coffee has cooled to $90^\circ C$. How much time is required before the coffee reaches a drinkable temperature of $65^\circ C$?

3. Suppose that a corpse was discovered in a motel room at midnight and its temperature was $80^\circ F$. The temperature of the room is kept constant at $60^\circ F$. Two hours later the temperature of the corpse dropped to $75^\circ F$. Find the time of death.