CALCULATING TIME OF DEATH USING ALGOR MORTIS

- For the first 12 hours, the body loses 0.78°C (1.4°F) per hour.
- After the first 12 hours, the body loses about 0.39°C (0.7°F) per hour.
- Normal body temp is 37°C (98.6°F)

Example 1: What is the temperature loss for someone who has been dead for 12 hours?

Example 2: Calculate the time of death if a person has been dead for less than 12 hours and the temperature of the body was determined to be 32.2°C.

37 Pote - 32.2 = Coto Hoc 4.8°C

4.8°C
$$\times \frac{1 \text{hr}}{0.78} = (6.2 \text{hr}) \text{ Can round to reduce the hour hour}$$

0.2 hr \(\text{Lumin} = 12 \text{min} \)

3: Is the time of death more than 12 hours or less than 12 hours?

Example 3: Is the time of death more than 12 hours or less than 12 hours?

- Recall that if a body has been dead for 12 hours or less, the body loses heat at a rate of 0.78°C per hour.
- If the body has been dead 12 hours, then 0.78°C/hr x 12 hrs € 9.36°C
- If a body loses 9.36°C, then the person has been dead for 12 hours.
- If a body loses more than 9.36°C, then the person has been dead for more than 12 hours.
- If they lose less than 9.36°C, then the body has been dead for less than 12 hours.

For each of the following, state if the body had been dead for more than or less than 12 hours based on the number of degrees lost:

- Total loss of 7.9 °C: 1855
- Total loss of 4.4 °C: 1855
- Total loss of 11.7 °C:
- Total loss of 17.2 °C:
- Total loss of 10.6 °C:

Example 4: Calculate the time of death if the person was dead for more than 12 hours. If the body has lost more than 9.36°C, then you know that the victim has been dead for more than 12 hours. Recall that after 12 hours, the body loses heat at a rate of 0.39°C per hour. You need to calculate how many hours beyond the 12 hours that someone died and add it to the 12 hours.

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• What if the body temp is 22.2°C (72°F)?

$$37-22.2 = 14.8°C - 9.36 = 5.44°C$$

$$5.44°C \times \frac{1}{0.39°C} = 14 \text{ hr} + 12 = 26 \text{ hr}$$

Part A

Determine the approximate time of death using evidence from algor mortis. Show your work. 1. Approximately how long has the victim been dead if his body temperature was 33.1°C?

1. Approximately now long has the victim been dead if his body temperature was
$$37 - 33.1 = 3.9 \degree C$$

$$3.9 \degree C \times 1hr$$

$$0.78 = 5hr$$

2. A body found outside in the winter has a temperature of 33.1°C. Has the body been dead a

3. Approximately how long has the victim been dead if his body temperature was 25.9°C?

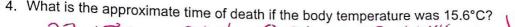
Approximately now long has the victim been dead it his body temperature was 25.
$$37-25.9°C = 11.1-9.34 = 1.74°C$$

$$12hr$$

$$1.74°C \times 1hr = 4hr + 12 = 1.6hr$$

$$0.39°C$$

$$5$$



4. What is the approximate time of death if the body temperature was
$$15.6^{\circ}$$
C?

$$37-15.6 = 21.4 - 9.34 = 12.04^{\circ}C \times \frac{1}{0.39} = 31$$

5. What is the approximate time of death if the body temperature was 10° C?

$$37-10=37-934=37-104^{\circ}C \times \frac{1}{104} \times \frac{1}{104}$$

$$37-10=27-9.36=17.64$$
 × $\frac{1}{0.39}=45$ hr

6. What is the approximate time of death if the body temperature was 29.4°C?

7. What is the approximate time of death if the body temperature was 24°C?
$$37-24 = 13 - 9.36 = 3.64 \times \frac{1 \text{hr}}{0.39} = 9 \text{hr}$$

$$12 + 9 = 21 \text{hr}$$

Part B

Describe the impact on time of death for each of the variables listed. If you based your time of death estimates strictly on temperature loss to be 10 hours earlier, would you reduce your 10-hour estimate or increase your 10-hour estimate if the body had been:

- 8. Naked add lohr
- 9. Exposed to windy conditions acld (Uhr
- reduce 10. Suffering from an illness before death
- 11. Submerged in a lake