

Case #1

ID: A

Jinkies! The Moaning Lisa has been stolen from the Haunted Museum! The crime scene contained traces of a chemical that was found to be 52.11% C, 13.14% H, and 34.75% O. What is the empirical formula? What art thief would be so bold?

Case #2

ID: A

Creepers! A creepy corpse stole all of Ma Ribbins' money from her grocery store. The crime scene team found a compound that was 27.37% Na, 1.20% H, 14.30% C, and 57.14% O. What was the empirical formula of this compound, and who committed the theft?

Case #1

ID: B

Jinkies! The Moaning Lisa has been stolen from the Haunted Museum! The crime scene contained drops of a liquid. When put through a mass spec, the 0.05 g sample was found to have 0.026055 g C, 6.57×10^{-3} g H and 0.0174 g O. What is the empirical formula? What art thief would be so bold?

Case #2

ID: B

Creepers! A creepy corpse stole all of Ma Ribbins' money from her grocery store. The crime scene team found a white powder. A mass spec revealed the 0.13 g sample as 0.0356 g Na, 1.56×10^{-3} g H, 0.0186 g C, and 0.074282 g O. What was the empirical formula of this compound, and who committed the theft?

Case #3

ID: A

Zoinks! A cat burglar broke onto the Eastman Estate and stole all of Ms. Eastman's bling! A chemical at this crime scene had a very strong smell. It had a percentage composition of 62.02% C, 10.43% H, and 27.55% O. What was the empirical formula? Who should the police arrest?

Case #4

ID: A

Pirate Pete swears that the scurvy mate who stole his parrot should walk the plank. Like, creepy, man. At this crime scene, the police found a compound which was 11.21% H and 88.79% O. What is the empirical formula? Who committed the crime?

Case #3

ID: B

Zoinks! A cat burglar broke onto the Eastman Estate and stole all of Ms. Eastman's bling! A chemical at this crime scene had a very strong smell. A small liquid sample (dropper mass 1.800g, dropper + liquid mass = 1.803g) was run through a mass spec. The make-up of the sample was 1.8606×10^{-3} g C, 3.129×10^{-4} g H, and 8.265×10^{-4} g O. What was the empirical formula? Who should the police arrest?

Case #4

ID: B

Pirate Pete swears that the scurvy mate who stole his parrot should walk the plank. Like, creepy, man. At this crime scene, the police found a colorless liquid. 10 drops (at 0.05g each) were tested. The sample had 0.05605 g H and 0.44395 g O. What is the empirical formula? Who committed the crime?

Case #5

ID: A

Jeepers! Someone snuck into the Movie Madness studio and stole the reels for the new film! The CSI team found a liquid at this crime scene. When analyzed, it was found to contain 5.94% H and 94.06% O. What was the empirical formula? Who should the police question?

Case #6

ID: A

Someone stole the net from the High Wire act at the Crazy Circus! Without it, the show can't go on! At this crime scene, there were traces of a compound which contained 60.0% C, 13.4% H, and 26.6% O. What was the empirical formula of the compound? Who committed the heinous act?

Case #5

ID: B

Jeepers! Someone snuck into the Movie Madness studio and stole the reels for the new film! The CSI team found a liquid at this crime scene. When the 0.7700 g sample was analyzed, it was found to contain 0.0457 g H and 0.7243 g O. What was the empirical formula? Who should the police question?

Case #6

ID: B

Someone stole the net from the High Wire act at the Crazy Circus! Without it, the show can't go on! At this crime scene, there were traces of a liquid, 9 drops (at 0.05 g a drop) were found to contain 0.2701 g C, 0.0603 g H, and 0.1197 g O. What was the empirical formula of the compound? Who committed the heinous act?

Case #7

ID: A

Old Man Higgins had his favorite cane taken from him when he was out for a walk through Sinister Park. The CSI team found traces of a solid sample at this crime scene. It was found to contain 39.33% Na and 60.67% Cl. What was the empirical formula of the compound? What kind of person would steal an antique cane?

Case #8

ID: A

The original getaway vehicle that Bugsy Malone drove disappeared from the Antique Auto Show. Traces of a strong-smelling liquid were found at this crime scene. The percentage composition of the liquid was 39.99% C, 6.73% H, and 53.28% O. What was the empirical formula of this liquid? Whodunit?

Case #7

ID: B

Old Man Higgins had his favorite cane taken from him when he was out for a walk through Sinister Park. The CSI team found traces of a white powder at this crime scene to be 60.67% Cl. A flame test yielded a yellow flame, indicating the remaining portion was sodium. What was the empirical formula of the compound? What kind of person would steal an antique cane?

Case #8

ID: B

The original getaway vehicle that Bugsy Malone drove disappeared from the Antique Auto Show. Traces of a strong-smelling liquid were found at this crime scene. The percentage composition of the liquid was 39.99% C and 53.28% O. The remaining portion was H. What was the empirical formula of this liquid? Whodunit?