

Penny Lab at home

Name: _____ partner: _____

The United States penny has been made of 95% copper from 1980 - 1982. However, the price of copper had risen so much that the U.S. Treasury decided to change the penny's intended alloy. Hence, it was intended that the composition of the penny, for all 1982 pennies have been made of mostly zinc, with a thin copper layer on the outside. In this lab, you will determine the % zinc and % copper in a penny. To do this you will take advantage of the activity series of metals, and perform a single replacement reaction on the penny.

Procedure

1. Obtain a clean, unscratched penny (post 1982, the newer the better). You and your lab partner will each need different years so you can tell them apart! Record the years in the data table.
2. Using a file, carefully scratch the edge of your penny in two places, until the zinc core is showing.
3. Weigh each penny. Record the mass.
4. Place each penny in a beaker with ca. 50 mL of HCl. Label the beaker with your names. Remove the bubbling around the filed area. Set beaker aside in designated area.

— Day Two —

5. Decant HCl and rinse penny w/ water. Carefully remove penny & dry w/ paper towel.
6. Once dry, weigh copper shell and record mass.

Calculations / Questions

1. How much zinc was lost in penny 1? _____ g (mass lost)

2. How much zinc was lost in penny 2? _____ g (mass lost)

3. What is the % Zn in penny 1?

4. What is the % Zn in penny 2?

5. What is the average % Zn?

6. The actual % Zn in pennies is 2.43. Calculate % error. $(\text{actual} - \text{experimental}) \div \text{actual} \times 100$

7. Write the complete, balanced equation for the chemical reaction you did:

8. Assuming the average penny contains 2.50 g zinc, how much HCl is required to react the all of the zinc, without leaving any EXCESS HCl? (hint: look at stoichiometry portion of your chemia lab's balanced equation first)



	Penny 1	Penny 2
Your Name:		
Penny Year:		
Initial Mass (g):		
Final Mass (g):		

Analysis Of A Penny Lab Answer Key

Penny Farmer



Analysis Of A Penny Lab Answer Key:

Chemistry and Society Michael E Green,2019 Holt Science and Technology Holt Rinehart & Winston,2004

Floating Breakwaters Permanent International Association of Navigation Congresses. Permanent Technical Committee II. Working Group 13,1994 Wind Energy 1975-1985 Penny Farmer,2012-12-06 **Marketing Practices in the Gasoline**

Industry United States. Congress. Senate. Committee on the Judiciary. Subcommittee on Antitrust and Monopoly,1971

The Jericho Flower Stephen F. Wilcox,2002-01-31 Returning for his fourth misadventure small town newspaperman and social gadfly Elias Hackshaw finds himself immersed in a mystery involving a dead con man and a missing gypsy princess with the improbable name of Bimbo Wanka Through no fault of his own well almost none Hack becomes a suspect in the case when the cops mistakenly conclude that he was an acquaintance of the murdered con artist Meanwhile Bimbo s parents turn up on Hack s doorstep demanding he turn over their missing daughter or face a gypsy curse To add to the mayhem a local industrialist is badgering Hackshaw to oversee a major renovation to his monstrosity of a house and Hack s sister Ruth is hectoring him to forget everything else and see to his duties as editor of The Triton Advertiser Trapped by circumstance Hack begins poking into things and soon discovers a circus assortment of off beat characters gypsies in cowboy hats a con man with a conscience a sheriff s investigator without a heart or a brain ham fisted townies and much much more Only a strong survival instinct and his usual portion of dumb luck can save Hackshaw this time around Wilcox spins an entertaining yarn of murder and mayhem With a credible plot and eccentric characters that adroitly avoid being mere caricatures Wilcox offers a semi cozy mystery uncloying clever and far from brutal Publishers Weekly Wilcox is an absolutely first rate writer The Jericho Flower is a well crafted imaginative tale that this reader wished could go on for much longer It s a great read Midwest Book Review The Jericho Flower is a surprising deep amusing and character driven mystery that will keep you on your toes It s a mystery that keeps you hanging until the very end an unlikely hero who will keep you laughing and a full range of characters that opens you up to small town life a most involved and amusing mystery from this very talented author All About Murder **Proceedings of the Section on Statistical Education** American Statistical Association. Section on

Statistical Education,1993 Papers presented at the annual meeting of the American Statistical Association Examination Review for Ultrasound: Sonographic Principles & Instrumentation Traci B Fox,Stephen M Penny,2024-09-05 Prepare for and excel on the Sonography Principles and Instrumentation SPI certification examination offered by the ARDMS Traci B Fox and Steven M Penny s Examination Review for Ultrasound Sonographic Principles Instrumentation 3rd Edition focuses only on the content you ll encounter on the exam saving you valuable study time Now in full color throughout it uses a concise narrative approach aligns with the SPI revised content outline and format and features an online exam simulator with hundreds of registry style questions **Pressure Vessels and Piping** S. Y. Zamrik,David Dietrich,1982 *Numerical Methods in Thermal Problems* Roland Wynne Lewis,Kenneth Morgan,1985 *Cold Case Homicides* R.H. Walton,2006-06-13

Written by a seasoned professional with over 30 years of experience in law enforcement *Cold Case Homicides Practical Investigative Techniques* provides effective and accessible information to those responsible for investigating and resolving previously examined but still unsolved cold case homicides The book merges theory with practice through the use of case histories photographs illustrations and checklists that convey essential fundamental concepts while providing a strong practical basis for the investigative process It combines proven techniques from forensics psychology and criminal investigation and focuses on technologies that may not have been available at the time of the crime This guide defines the characteristics of a cold case homicide details various investigative methods used by law enforcement agencies explores the actual experiences of detectives in re opening case files and presents current technologies such as ViCAP HITS and TracKRS used in the identification of cases related to the re opened case or its perpetrator It also highlights technological changes that contribute greatly to law enforcement s abilities to solve cold case homicides such as computerized print technology the specificity of DNA and the expanding data banks that enable the linkage of previously unknown suspects to the crimes they committed Addressing methods particularly valuable to cold cases *Cold Case Homicides Practical Investigative Techniques* assists the investigator in being prepared focused objective and successful in obtaining the truth **KillerSmile** Jeffrey McGraw, 2002-08-06 *KillerSmile* the third Ross Malone thriller by creator Jeffrey McGraw finds the private investigator teetering on the edge of destruction His girlfriend volunteers his help to a troubled teenaged fan of her radio show The police think he murdered the congresswoman he was once paid to protect There s a bounty on his head from a blood feud with the local crime czar who is a sore loser That bull s eye on Ross Malone s back isn t a fashion statement And newfound friends provide newfound problems Heroes don t run Heroes fight back **Numerical Methods in Thermal Problems**, 1985

New York Magazine, 1976-11-22 *New York magazine* was born in 1968 after a run as an insert of the *New York Herald Tribune* and quickly made a place for itself as the trusted resource for readers across the country With award winning writing and photography covering everything from politics and food to theater and fashion the magazine s consistent mission has been to reflect back to its audience the energy and excitement of the city itself while celebrating New York as both a place and an idea **Proceedings ... SPE Annual Technical Conference and Exhibition** Society of Petroleum Engineers (U.S.). Technical Conference and Exhibition, 1992 [Using Multimedia Technology in Chemistry Pre-laboratory Preparation](#) Jeffrey Glen Yoder, 2002 **Chem C&A Chemla&Min Wksh** McGraw-Hill Education, 1996-08 *Final Deadline: Foul Play without a Clue* Moses Kery, 2012-03-26 A locked door a dead body A millionaire industrialist dies under suspicious circumstances by an overdose of a prescription medication But there is one peculiar circumstance The victim had contacted his attorney to change his will only days before his demise making the death all the more suspicious Could someone have murdered the man to keep him from rewriting his will Or was the death a suicide or even perhaps an accidental overdose Whodunit Certainly not the butler But only the reader can tell Each ending reflects an alternate reality in which different

choices and character dynamics lead to different conclusions of the story Find your favorite ending for only the reader can decide if it was murder suicide an accident or something else Each twist and turn in the investigation by the detective brings a different conclusion to the story The ten unique alternate endings allow the reader to choose their own favorite solution to the mystery ten novels in one book *Welding Research Council Bulletin Series* Welding Research Council (U.S.),1979

Marketing Practices in the Gasoline Industry United States. Congress. Senate. Judiciary,1971

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