

I'm not robot  reCAPTCHA

[Next](#)

Science Practice Exam
 Chapter 1 and 14 Answers

1. A
 2. B
 3. D
 4. C
 5. B

16. $V = 12V$ $R = 4\Omega$ $I = 3A$

17.

18. $E = 900 \text{ kJ} \times 1000 = 900,000 \text{ J}$
 $t = 45 \text{ minutes} \times 60 = 2700 \text{ seconds}$
 $P = \frac{E}{t}$
 $P = \frac{900,000 \text{ J}}{2700 \text{ s}}$
 The electrical power of this appliance is 333.33 watts.

19. Conventional current flows from positive to negative.

20. $P = 2000 \text{ W} \times 1000 = 2 \text{ MW}$
 $t = 4 \text{ hours}$
 $E = P \times t$
 $E = 2 \text{ MW} \times 4 \text{ h}$
 $E = 8 \text{ MWh}$
 The energy used is 8 MWh.

21. When a glass rod and silk are rubbed together, electrons transfer from the glass rod to the silk. The glass has lost electrons giving it a positive charge and the silk has gained electrons from the glass leaving the silk with a negative charge.

22. $I = 300 \text{ mA} = 0.3 \text{ A}$
 $R = 100 \Omega$
 $V = I \times R$
 $V = 0.3 \text{ A} \times 100 \Omega$
 $V = 30 \text{ volts}$
 The voltage of the power supply is 30 volts.

23. $P = 250 \text{ W}$
 $t = 30 \text{ mins} = 1800 \text{ seconds}$
 $E = P \times t$
 $E = 250 \text{ W} \times 1800 \text{ s}$
 $E = 450,000 \text{ J}$
 $E = 450,000 \text{ J} = 1300 \text{ Wh}$
 $E = 450 \text{ kJ} = 10.6 \text{ kWh} = 13,500 \text{ Wh}$
 13,500 Wh of energy will be consumed in one month.

24. $R = 10 \Omega$
 $V = 120 \text{ V}$
 $P = \frac{V^2}{R}$
 $P = \frac{120^2}{10}$
 $P = 1440 \text{ W} = 1.44 \text{ kW}$
 $P = VI$ $P = 120 \times 2.4 \text{ A}$ $P = 288 \text{ watts}$
 The power is 288 watts.

25. $AV = 220 \text{ V}$ $R = 30 \Omega$
 $I = \frac{V}{R} = \frac{220}{30} = 7.33 \text{ amperes}$
 $I = \frac{E}{P}$ $E = 1000 \text{ Wh} = 3,600,000 \text{ J}$
 $P = VI = 220 \times 7.33 \text{ A}$ $P = 1612.6 \text{ W}$
 $E = 3,600,000 \text{ J} = 1000 \text{ Wh}$ $E = 1000 \times 3600 \text{ s}$
 $t = \frac{E}{P} = \frac{3,600,000 \text{ J}}{1612.6 \text{ W}}$
 $t = 2232.3 \text{ seconds} = 37.2 \text{ minutes}$
 The coffee maker used 0.623 kWh of energy.

26. $SE = P \times t$
 $E = 1.8126 \text{ kWh} = 6,525,360 \text{ J}$
 $E = 6,525,360 \text{ J} = 1812.6 \text{ kWh}$
 $0.026 \text{ kWh} \times 30 \text{ days} = 7.38$
 It would cost \$7.38 to run the coffee maker for a year.

Chemistry
 Chemical Reactions Test
 Review

Name Key
 Period _____ Date _____

- Determine if the following compounds will dissolve when placed in water. Write soluble or not soluble by the compound.
 - K_2SO_4 soluble
 - $CuCl$ not soluble
 - $Pb(OH)_2$ not soluble
 - CaS soluble
- Aqueous aluminum nitrate reacts with aqueous magnesium sulfide to produce aqueous magnesium nitrate and solid aluminum sulfide. Write a balanced equation and show states of matter.

$$2Al(NO_3)_3(aq) + 3MgS(s) \rightarrow 3Mg(NO_3)_2(aq) + Al_2S_3(s)$$
- Nitrogen dioxide gas reacts with oxygen gas to produce dinitrogen pentoxide gas. Write a balanced equation and show states of matter.

$$2NO_2(g) + \frac{1}{2}O_2(g) \rightarrow N_2O_5(g)$$
- Predict the products of each reaction, balance the reaction, and determine type of reaction. Double replacement reactions require all reactants and products to have a state of matter.
 - $C_3H_{12}(g) + 8O_2(g) \rightarrow 5CO_2 + 6H_2O$
 - $2AlBr_3(l) \xrightarrow{electrolysis} 2Al + 3Br_2$
 - $Li(s) + NaCl(aq) \rightarrow Na + LiCl$
 - $Fe(s) + Al(NO_3)_3(aq) \rightarrow N.R.$
 - $2Al(NO_3)_3(aq) + 3Na_2CO_3(aq) \rightarrow Al_2(CO_3)_3(s) + 6NaNO_3(aq)$
 - $AlBr_3(aq) \xrightarrow{H_2O} Al^{3+} + 3Br^{-}$

Quiz 2 answers

- 50% 1. a) Answer the questions below based on the following chemical reaction occurring in a closed system:
- $$2NO_2(g) \rightleftharpoons 2NO(g) + O_2(g) \quad \Delta H_{rxn}^\circ = 114.4 \text{ kJ} \quad \text{endothermic}$$
- The correct coefficients to use in balancing this equation for equilibrium purposes would be 2 NO_2 : 2 NO : 1 O_2 .
 True or False
 - The correct coefficients to use in balancing this equation for equilibrium purposes would be 1 NO_2 : 1 NO : $\frac{1}{2} O_2$.
 True or False
 - If $K_c = 4.0 \times 10^{-13}$ at 298 K, the reaction mixture at equilibrium at 298 K consists mainly of
 reactants or products
 - If $K_c = 48$ at 1000 K, the reaction mixture at equilibrium at 1000 K consists mainly of
 reactants or products
 - If $K_c = 4.0 \times 10^{-13}$ at 298 K, the K_c value for the reaction at 298°C should be $298^\circ C + 273 = 571 \text{ K}$
 higher or lower or the same
 - If $K_c = 48$ at 1000 K, the K_c value for the reaction at 1000°C should be $1000^\circ C + 273 = 1273 \text{ K}$
 higher or lower or the same
 - If $NO_2(g)$ were added to the reaction vessel without affecting any other property of the system, the equilibrium should
 shift forward or shift in reverse or not be affected
 - If $NO(g)$ were added to the reaction vessel without affecting any other property of the system, the equilibrium should
 shift forward or shift in reverse or not be affected
 - If $Ar(g)$ were added to the reaction vessel without affecting any other property of the system, the equilibrium should
 shift forward or shift in reverse or not be affected
 - If $He(g)$ were added to the reaction vessel without affecting any other property of the system, the equilibrium should
 shift forward or shift in reverse or not be affected
 - If the reaction vessel was compressed without affecting any other property of the system, the equilibrium should
 shift forward or shift in reverse or not be affected
 - If the reaction vessel was expanded without affecting any other property of the system, the equilibrium should
 shift forward or shift in reverse or not be affected



STOICHIOMETRY

- 3 mol of a mixture of FeSO_4 and $\text{Fe}_2(\text{SO}_4)_3$ required 100 ml of 2 M KMnO_4 solution in acidic medium. Hence, the mol fraction of FeSO_4 in the mixture is
(a) 1/3 (b) 2/3 (c) 2/5 (d) 3/5
- 100 ml of 0.6 N H_2SO_4 and 200 ml of 0.3 N HCl were mixed together. The normality of the resulting solution will be
(a) 0.1 N (b) 0.2 N (c) 0.3 N (d) 0.4 N
- The equivalent mass of MnSO_4 is half of its molar mass when it is converted to
(a) Mn_2O_3 (b) MnO_2 (c) MnO_4^- (d) MnO_4^{2-}
- 34 g of hydrogen peroxide is present in 1120 ml of solution. This solution is called
(a) 10 vol solution (b) 20 vol solution (c) 30 vol solution (d) 32 vol solution
- 10 ml of 8% by mass NaOH is mixed with 10 ml of 8% by mass of HCl , the resulting solution is
(a) acidic (b) basic (c) neutral (d) strongly basic
- For the formation of 5 mol of water, which reaction uses the most nitric acid?
(a) $3\text{Cu} + 8\text{HNO}_3 \rightarrow 3\text{Cu}(\text{NO}_3)_2 + 2\text{NO} + 4\text{H}_2\text{O}$
(b) $\text{Al}_2\text{O}_3 + 6\text{HNO}_3 \rightarrow 2\text{Al}(\text{NO}_3)_3 + 3\text{H}_2\text{O}$
(c) $4\text{Zn} + 10\text{HNO}_3 \rightarrow 4\text{Zn}(\text{NO}_3)_2 + \text{NH}_4\text{NO}_3 + 3\text{H}_2\text{O}$
(d) $\text{Cu} + 4\text{HNO}_3 \rightarrow \text{Cu}(\text{NO}_3)_2 + 2\text{NO}_2 + 2\text{H}_2\text{O}$
- Which substance is serving as a reducing agent in the following reaction,
 $14\text{H}^+ + \text{Cr}_2\text{O}_7^{2-} + 3\text{Ni} \rightarrow 2\text{Cr}^{3+} + 7\text{H}_2\text{O} + 3\text{Ni}^{2+}$
(a) H_2O (b) Ni (c) H^+ (d) $\text{Cr}_2\text{O}_7^{2-}$
- Equivalent mass of MnO_4^- ion in the process $\text{MnO}_4^- \rightarrow \text{MnO}_2$ is equal to its
(a) Formula mass (b) $\frac{\text{formula mass}}{2}$ (c) $\frac{\text{formula mass}}{3}$ (d) $\frac{\text{formula mass}}{4}$
- The products of combustion of an aliphatic thiol (RSH) at 298 K are
(a) $\text{CO}_2(\text{g})$, $\text{H}_2\text{O}(\text{g})$ and $\text{SO}_2(\text{g})$ (b) $\text{CO}_2(\text{g})$, $\text{H}_2\text{O}(\text{l})$ and $\text{SO}_2(\text{g})$
(c) $\text{CO}_2(\text{g})$, $\text{H}_2\text{O}(\text{l})$ and $\text{SO}_2(\text{g})$ (d) $\text{CO}_2(\text{g})$, $\text{H}_2\text{O}(\text{l})$ and $\text{SO}_2(\text{l})$
- The oxidation states of the most electronegative element in the products of the reaction, BaO_2 with dil. H_2SO_4 are
(a) 0 and -1 (b) -1 and -2 (c) -2 and 0 (d) -2 and +1
- The products of combustion of an aliphatic thiol (RSH) at 298 K are
(a) $\text{CO}_2(\text{g})$, $\text{H}_2\text{O}(\text{g})$ and $\text{SO}_2(\text{g})$ (b) $\text{CO}_2(\text{g})$, $\text{H}_2\text{O}(\text{l})$ and $\text{SO}_2(\text{g})$
(c) $\text{CO}_2(\text{g})$, $\text{H}_2\text{O}(\text{l})$ and $\text{SO}_2(\text{g})$ (d) $\text{CO}_2(\text{g})$, $\text{H}_2\text{O}(\text{l})$ and $\text{SO}_2(\text{l})$
- 0.2 g of a sample of H_2O_2 required 10 ml of 1 N KMnO_4 in a titration in the presence of H_2SO_4 . The percentage purity of H_2O_2 is:
(a) 25% (b) 85% (c) 65% (d) 95%
- The bond order of NO is 2.5 while that in NO^+ is 3. Which of the following statements is true for these species
(a) Bond length in NO^+ is greater than in NO
(b) Bond length in NO is greater than in NO^+
(c) Bond length in NO^+ is equal to NO

Copy right reserved with Entrance 1

Chapter 9: Chemical Reactions

- Which of the following could be an indication of a chemical reaction of a compound or element?
a. It is a solid at room temperature. b. It melts at 631°C .
c. It expands upon freezing. d. It burns in an atmosphere of chlorine.
- In this unbalanced chemical reaction, which components are the reactants?
 $\text{C}_7\text{H}_{16} + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$
a. C_7H_{16} and O_2 b. C_7H_{16} and CO_2
c. C_7H_{16} and H_2O d. CO_2 and H_2O
- When $\text{Ca}(\text{OH})_2$ reacts with H_2SO_4 , what are the products?
a. $\text{Ca}(\text{OH})_2$ and H_2SO_4 b. CaH_2 and H_2SO_4
c. CaSO_4 and H_2O d. CaO and H_2SO_4
Hint: This is a double-replacement reaction, positive ions switch places.
- What are the products of the reaction between barium hydroxide and hydrochloric acid?
a. Barium chloride and water b. Barium hydroxide and water
c. Barium chloride and barium hydride d. Chloric acid and barium hint: Write out the skeleton equation. This is a double-replacement reaction.
- This symbol separates the reactants from products and means "to yield".
a. + b. (s) c. \rightarrow d. (g)
- In a chemical equation, the number written in front of the chemical formula is the
a. Reactant b. Subscript c. Equation d. Coefficient
- When there are exactly the same number and type of atoms on both sides of a chemical equation, the equation is
a. Balanced b. Ionic c. Synthetic d. Decomposed
- The chemical equation $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$ is classified as a
a. Synthesis reaction b. Decomposition reaction
c. Single-replacement reaction d. Double-replacement reaction
- In the combustion reaction of propane (C_3H_8) with oxygen gas, what are the products?
a. C_3H_8 and O_2 b. C_2H_6 and CO_2 c. O_2 and H_2O d. H_2O and CO_2
- The major physical indicator(s) of a combustion reaction is

1

Possible Answers: Precise, but not accurate Accurate, but the precision cannot be determined Accurate, but not precise Neither accurate nor precise Both accurate and precise Correct answer: Accurate, but not precise Explanation: This bag is accurate because it provided the correct number of balloons, however, the process is not precise as the results were clearly not repeatable. Calculate the percent error of your experiment. Possible Answers: Correct answer: Explanation: To find percent error we need to use the following equation: Plug in 42 for the theoretical yield and 32.73 for the actual yield and solve accordingly. High accuracy demands that the experimental result be equal to the theoretical result. Measuring an object will always display a mass of . the results are easily reproduced. In your experiment, the actual yield is 32.73 grams. If a given sample of silver and flourine ideally combine to form 0.6mol of AgF , what is the percent error if the actual yield is 43 grams? We can find the percent error by plugging in 76.2g for our theoretical yield and 43g for the actual yield in the following equation: Michael buys several bags of balloons. This is true even if the results are not true to the theoretical predictions, an experiment can have high precision with low accuracy. Even though it displays the wrong value, it is consistent. After weighing three bags, Wally observes the masses to be . . . and . Score: 0% Rank: Correct Answer: Start Quiz >> - Previous 1 2 3 4 5 6 7 8 9 10 Next - Robert conducted an experiment in which he investigated how much water a paper towel could absorb. Initially, Robert found that one paper towel could absorb 12.8g of water. Possible Answers: An archer hits the same spot on the target three times in a row An archer hits the bull's-eye A student repeatedly calculates the mass of an object to be 49 grams, when the true mass is 52 grams A student calculates the acceleration due to gravity to be using three different methods A student throws three pencils into the trash can, but misses and hits the window each time Correct answer: An archer hits the bull's-eye Explanation: Accuracy is the measure of difference between a calculated value and the true value of a measurement. Please follow these steps to file a notice: You must include the following: A physical or electronic signature of the copyright owner or a person authorized to act on their behalf; An identification of the copyright claimed to have been infringed; A description of the nature and exact location of the content that you claim to infringe your copyright, in \ sufficient detail to permit Varsity Tutors to find and positively identify that content; for example we require a link to the specific question (not just the name of the question) that contains the content and a description of which specific portion of the question - an image, a link, the text, etc - your complaint refers to; Your name, address, telephone number and email address; and A statement by you: (a) that you believe in good faith that the use of the content that you claim to infringe your copyright is not authorized by law, or by the copyright owner or such owner's agent; (b) that all of the information contained in your Infringement Notice is accurate, and (c) under penalty of perjury, that you are either the copyright owner or a person authorized to act on their behalf. What is the approximate percent error between the findings of the first and second experiments? Later he found that his scale was not calibrated, so he had to repeat the experiment. How would you describe the bag of balloons with 100 balloons inside? If you believe that content available by means of the Website (as defined in our Terms of Service) infringes one or more of your copyrights, please notify us by providing a written notice ("Infringement Notice") containing the information described below to the designated agent listed below. In the following reaction, eight moles of sodium hydroxide is broken down into four moles of sodium oxide and four moles of water. Precision deals with how consistent the measurement is. Send your complaint to our designated agent at: Charles Cohn Varsity Tutors LLC 101 S. To get high accuracy but low precision, measurements must center around the target value but be variable. Andrew Certified Tutor University of South Florida-Main Campus, Bachelors, Biomedical Sciences. Please be advised that you will be liable for damages (including costs and attorneys' fees) if you materially misrepresent that a product or activity is infringing your copyrights. Your Infringement Notice may be forwarded to the party that made the content available or to third parties such as ChillingEffects.org. In our case, precise shots will be clustered together. Possible Answers: The bowman consistently hits around the target but never hits the bullseye The bowman consistently hits the bullseye The bowman consistently hits to the left of the target The bowman consistently misses the target and hits a tree in the same spot The bowman consistently hits to the right of the bullseye Correct answer: The bowman consistently hits around the target but never hits the bullseye Explanation: Accuracy is measured as the degree of closeness to the actual measurement. An brand of fruit snacks claims that each bag of fruit snacks has a mass of . If multiple trials produce the same result each time with minimal deviation, then the experiment has high precision. Accuracy is how well a device measures something against its accepted value. Possible Answers: Correct answer: Explanation: The formula for percent error is: In this case, the measured value is 12.8g and the accepted value is 32.8g. It was not precise because the other measurements show that the number of balloons is variable. If all the shots were averaged, the bullseye would be at the center. Gregory Certified Tutor Pennsylvania State University-Main Campus, Bachelor of Science, Chemical Engineering. A reaction between one mole of sodium and one mole of chloride should yield 42 grams of sodium chloride. In contrast, accuracy is the measure of difference between a calculated value and the true value of a measurement. Thus, if you are not sure content located on or linked-to by the Website infringes your copyright, you should consider first contacting an attorney. Hanley Rd, Suite 300 St. Louis, MO 63105 Or fill out the form below: That means it is precise. Possible Answers: An archer hits the same spot on the target three times in a row A student correctly calculates the mass of an object to be 54kg A student correctly calculates the acceleration due to gravity to be A student tries to throw a pencil into the garbage can and makes it in An archer hits the bull's-eye Correct answer: An archer hits the same spot on the target three times in a row Explanation: Precision is a measure of reproducibility. Possible Answers: Correct answer: Explanation: To find the percent error we need to use the following equation: But in order to do this, we first have to convert moles of sodium oxide into grams: This gives us a theoretical yield of 248g, which we plug in with our 195g actual yield. If Varsity Tutors takes action in response to an Infringement Notice, it will make a good faith attempt to contact the party that made such content available by means of the most recent email address, if any, provided by such party to Varsity Tutors. The bowman's arrows will not be clustered (low precision), but will be accurately distributed around the bullseye. Carnegie Mellon University, Doctor of P... In this case, Michael's scale is not accurate because it is always off by . The bag with 100 balloons inside matched the claim made on the bag, meaning it was accurate. Michael's scale measures the mass of objects as consistently less than their actual mass. In this case, Michael's scale is ALWAYS short. Precision is measured as the degree of closeness of one measurement to the next. Possible Answers: There are insufficient data points to draw a conclusion Accurate, but not precise Neither accurate nor precise Precise, but not accurate Correct answer: Accurate, but not precise Explanation: The claim for the mass of the first bag is accurate: the brand says there should be in each bag and there was in the first bag. If you've found an issue with this question, please let us know. In contrast, precision is a measure of reproducibility. New York Medical College, PHD, Doctor of Medicine. Possible Answers: Correct answer: Explanation: Our first step to complete this problem is to convert moles AgF into grams: This gives us a theoretical yield of 76.2 grams. After repeating the experiment with a new scale, Robert found that one paper towel can actually absorb 32.9g of water. With the help of the community we can continue to improve our educational resources. He opens the bags and only one of them has 100 balloons inside; the other bags either have too many or too few. In our case, accurate shots will hit the bullseye. Possible Answers: It is neither accurate nor precise It is precise, but not accurate It is accurate, but not precise It is both accurate and precise Accuracy and precision are synonyms Correct answer: It is precise, but not accurate Explanation: Precision measures how consistently a device records the same answer. Which of the following demonstrates high accuracy but low precision? A bowman is shooting arrows at a target. How can Wally describe the accuracy and precision of the first bag he measured? An archer hitting a bull's-eye is an example of high accuracy, while an archer hitting the same spot on the bull's-eye three times would be an example of high precision. Which of these is an example of high accuracy? - Previous 1 2 3 4 5 6 7 8 9 10 Next - Patrick Certified Tutor University of Connecticut, Bachelor of Engineering, Chemical Engineering. What is the percent error if your experiment yields 195 grams of sodium oxide? Accuracy deals with how close the measurement got to the accepted measurement. How would you describe the scale? Which of these is an example of high precision? The masses of the bags fluctuate, with the average of all three bags equal to . The claim on the first bag is not precise, as the results are not replicated universally throughout the experiment. On the package, it says that each bag has 100 balloons.

