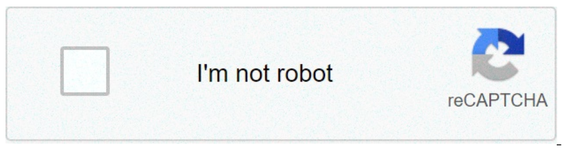

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Topic College Physics Volume 1 11th Edition Serway SOLUTIONS MANUAL Full download at: Topic 1 Units, Trigonometry, and Vectors QUICK QUIZZES 1.1 Choice (c). The largest possible magnitude of the resultant occurs when the two vectors are in the same direction. In this case, the magnitude of the resultant is the sum of the magnitudes of !A and !B : R = A + B = 20 units. The smallest possible magnitude of the resultant occurs when the two vectors are in opposite directions, and the magnitude is the difference of the magnitudes of !A and !B : R = | A B | = 4 units. 1.2 Vector x-component y-component !A + !B + !A + B //testbankreal.com/download/college-physics-volume-1-11th-edition-serway-solutions-manual/Topic 1.3 Vector !B . The range of the inverse tangent function includes only the first and fourth quadrants (i.e., angles in the range /2 < < /2). OnlyTopic vector !B has an orientation in this range. ANSWERS TO EVEN NUMBERED CONCEPTUAL QUESTIONS 1.2 Atomic clocks are based on the electromagnetic waves that atoms emit. Also, pulsars are highly regular astronomical clocks. 1.4 (a) ~0.5 lb 0.25 kg or ~101 kg (b) 4 lb 0.25 kg or ~100 kg (c) ~4 000 lb 2 000 kg or ~103 kg 1.6 Let us assume the atoms are solid spheres of diameter 1010 m. Then, the volume of each atom is of the order of 1030 m3. (More precisely, volume = 4 r 3 /3 .) Therefore, since 1 cm3 = 10 6 m3, the number of atoms in the 1 cm3 solid is on the order of 10 6 / 10 30 = 1024 atoms. A more precise calculation would require knowledge of the density of the solid and the mass of each atom. However, our estimate agrees with the more precise calculation to within a factor of 10. 1.8 Choice (d). For an angle from 0 to 360, the sine and cosine functions take the values 1 sin 1 and 1 cos 1 1.10 In the metric system, units differ by powers of ten, so its very easyTopic and accurate to convert from one unit to another. 1.12 Both answers (d) and (e) could be physically meaningful. Answers (a), (b), and (c) must be meaningless since quantities can be added or subtracted only if they have the same dimensions. 1.14 The correct answer is (a). The second measurement is more precise but, given the number of reported significant figures, each measurement is consistent with the other. 1.16 The components of a vector will be equal in magnitude if the vector lies at a 45 angle with the two axes along which the components lie. ANSWERS TO EVEN NUMBERED PROBLEMS 1.2 (a) L / T2 (b) L 1.4 All three equations are dimensionally incorrect. 1.6 (a) kg m/s (b) Ft = p 1.8 58 1.10 (a) 22.6 (b) 22.7 (c) 22.6 is more reliable 1.12 (a) 3.00 108 m/s (b) 2.997 9 108 m/s (c) 2.997 925 108 m/s 1.14 (a) 346 m2 13 m3 (b) 66.0 m 1.3 mTopic 1 2 1.16 (a) 797 (b) 1.1 (c) 17.66 1.18 132 m2 1.20 3.09 cm/ s 1.22 (a) 5.60 102 km = 5.60 105 m = 5.60 107 cm (b) 0.491 2 km = 4.912 104 cm (c) 6.192 km = 6.192 103 m = 6.192 105 cm (d) 2.499 km = 2.499 103 m = 2.499 105 cm 1.24 10.6 km/ L 1.26 9.2 nm/ s 1.28 2.9 102 m3 = 2.9 108 cm3 1.30 2.57 106 m3 1.32 ~108 steps 1.34 ~108 people with colds on any given day 1.36 (a) 4.2 10 18 m3 (b) ~10 1 m3 (c) ~1016 cells 1.38 1014 kg 1.40 2.2 m 1.42 8.1 cm 1.44 s = r 2 + r 2 2r1r2 cos(1 2)Topic ! 1.46 2.33 m 1.48 (a) 1.50 m (b) 2.60 m 1.50 8.60 m 1.52 1.44 103 m 1.54 (a) 6.1 units at = +113 (b) 15 units at = +23 1.56 (a) 484 km (b) 18.1 N of W (c) Because of Earths curvature, the plane does not follow straight lines. 1.58 R = 9.5 units at!!57 above!!the!+ x2axis 1.60 (a) 13.4 m (b) 19.9 m 1.62 1.31 km northward, 2.81 km eastward 1.64 (a) 10.0 m (b) 15.7 m (c) 0 1.66 42.7 yards 1.68 788 mi at 48.0 N of E 1.70 (a) 185 N at 77.8 from the x-axis (b) 185 N at 258 from the x-axis 1.72 (a) 1.609 km/h (b) 88 km/h (c) 16 km/h 1.74 (a) 7.14 102 gal/s (b) 2.70 10 4 m3/s (c) 1.03 h Topic College Physics Volume 1 11th Edition Serway SOLUTIONS MANUAL Full download at: college physics 11th edition serway serway vuille college physics 11th edition serway college physics 10th edition serway college physics pdf college physics 11th edition pdf serway college physics solutions college physics serway 11th edition ebook college physics 11th edition solutions //testbankreal.com/download/college-physics-volume-1-11th-edition-serway-solutions-manual/Page 211th Grade Physics ! Summer Packet Name: _____ Date:_____ This will be 10% of your Quarter 1 Physics Grade. Instructions for Physics Summer Packet 2. You must show all your work (and your work only) to earn full credit. This packet counts as 10% of your Quarter 1 Physics Grade. 3. This packet contains 7 sections of prerequisite practice and preparation for Physics; 1. Science & Engineering Fair.....1 2. Experimental Design & Data Analysis .....9 3. Unit Conversions .....11 4. Scientific Notation .....14 5. Trigonometry .....16 6. Algebra.....19 7. Quadratic Equations .....22 1. SCIENCE & ENGINEERING FAIR Most Important Thing - You will be busy next year. You will have SATs, APs, NHD and everything else. It is important that you complete a quality science fair project. This means you should get as much done as possible over the summer. 1. You may only work as an individual or with a partner. See sample project ideas on page 8. 2. See Table 1 for restrictions, possible requirements and alternatives for certain research topics. 3. You must spend time doing background research to understand the problem you want to address. The time you spend now will make the experimental and writing process much easier. For a research project at this level, you are expected to include scholarly research resources (writing done by an academic-professor or researcher at college or university). See Table 2 for Free Open- Access Resources from which you can find scholarly articles. You can also research how you may access material at local colleges and universities libraries. 1 1.This packet must be submitted by the first Friday of the new school calendar. For your SUMMER PACKET, complete the following: 1. Project Information Form on page 4. 2. An annotated bibliography using APA format of 2-3 sources you read when doing research for your project. Examples of annotated bibliographies are at the back of this packet. Submit a hard copy of your bibliography along with this packet. **If you are working with a partner, each person must submit a bibliography of 2 or more different sources. 3. A material and equipment requisition form if items are needed from the school by visiting . Table 1 ! 2Table 2 ! 32019/2020 Science & Engineering Fair Project Information Form Name: _____ Proposed Partner: _____ Division: (Circle One) Science Engineering Project Title Can be changed or modified later. _____ Signature of Proposed Partner: _____ Proposed Advisor(s): _____ Teacher at school and/or outside mentor _____ _____ Circle YES or NO to answer the following questions: Is this a continuation of last year's project? YES or NO Have you purchased a Graph Composition YES or NO Graph Paper/Graph Ruled Notebook? Do you attend after school academy? YES or NO Do you attend Saturday academy? YES or NO Do you attend any after school clubs? YES or NO Are you interested in competing in a science fair or YES or NO other competitions outside of school? 4! 5! 6! 7Science Fair Project Topics Environmental Science: Can Plant Cloning Be Used Effectively by Produce Growers? Environmental Science: How Effective is Beta Carotene in Fighting Cancer in Plants? Environmental Science: Can Earthworms be used to recycle kitchen wastes into Fertile Garden Soil? Environmental Science: Do Gas Stations Affect the Soil around them? Microbiology: An Analysis of the Bacteria and Heavy Metal Content of Sewage before and after Treatment at a Sewage Plant? Physics: Does a Golf Ball's Bounciness Influence the Distance that it will travel? Astrophysics: Apparent Magnitude Botany: Meristematic Region- Growth Rate Botany: The Effect of Electromagnetic Fields on Eremosphaera Algae Cells Microbiology: Food Additives & Molding of Bread Organic Chemistry: Saturated & Unsaturated Triglycerides Physics: Thermal Conduction & Transfer of Vibrational Energy Physics: Which form of insulation is most effective? Zoology: Are Dogs colorblind? Chemistry: What is the Most Efficient Substance for Melting Ice? Chemistry: Can the Life Span of a Soap Bubble Be Extended in Different Temperatures and Atmospheric Conditions? Health Science: What Substance is Most Effective in Cleaning Teeth? Microbiology: How Can the Amount of Bacteria Found on Kitchen Sponges be reduced? Microbiology: Improving the Antibacterial Effects of Garlic Physics: Polarization and Stress Analysis of Airplane Windows Engineering Ideas: Building an organizer for students Building energy efficient windows Building an architectural structure from live trees Designing safe bicycle routes using global position system software 82. Experimental Design & Data Analysis 1. A student performed an experiment in which the weight attached to a suspended spring was varied and the resulting total length of the spring measured. The data for the experiment are in the table below. a. Plot the data points for the attached weight versus total spring length. Draw a line of best fit (best fit line) using a ruler. ! ! b. Using one or more complete sentences, state a valid conclusion that relates increasing the attached weight to the total spring length. 92. Many people who are in favor of alternative medicine claim that large doses of vitamin C introduced into a vein speed up the healing of surgical wounds. Describe an experiment to test this hypothesis. Your answer must include at least: - The difference between the experimental group of the study and the control group - Two conditions that must be kept constant in both groups - Data that should be collected - An example of experimental results that would support the hypothesis 103. Unit Conversions Show all work and put a box around your final answer. 113. Convert 2.14 grams to kilograms. 4. Convert 5.0 x 103 milliliters to liters. 5. Convert 2,000 millimeters to kilometers. 126. Convert 0.050 kilograms to grams. 7. Find your age in seconds. 8. Express 72 kilometers per hour as meters per hours. 134. Scientific Notation Show all work and put a box around your final answer. 9. If 0.000023 is expressed in the form 2.3 x 10n , what is the value of n? 10.Express in scientific notation the number 0.00017. 11.Which value for n makes this sentence true? 0.00045 = 4.5 x 10n 12. In scientific notation, 54,000,000 is expressed as: 1413. If the fraction is expressed in the form 1.23 x 10n , what is the value of n? 14. The mass of an orchid seed is approximately 0.0000035 gram. What is the mass equivalent to in scientific notation? 15. The mass of 60 paper clips is 18.0 grams. What is the mass of one paper clip in scientific notation? 155. Trigonometry Answer the following questions using Pythagorean Theorem, trigonometric functions and inverse trigonometric functions. For full credit, be sure to show your setup and work for each problem. 16. Fill in the missing side of each triangle: a. ! b. ! c.! 1617. Find the marked side of each triangle: a. ! b. ! c. ! 1718. Find the value for the marked angle: a. ! b. ! 186. Algebra 19. Solve the following equations for v: a. s=v/t b. t=s/v c. a= v2/2s d. v=b/c 20. Solve the following equations for E: a. F= E/s b. M = 2E/v2 c. M= E/c2 1921. Solve the following equation s = at2 for the following: 2 a. t2 b. a c. 2 22. Solve the equation v2 = 2as for the following: aPage 3 Below are Chegg supported textbooks by Chris Vuille. Select a textbook to see worked-out Solutions. Book Name Author(s) Bundle: College Physics, Volume 1 + Enhanced WebAssign with eBook LOE Printed Access Card for OneTerm Math and Science 9th Edition 1415 Problems solved Serway, Raymond A. Serway, Chris Vuille Bundle: College Physics + Custom Enrichment Module: Enhanced WebAssign - Start Smart Guide for Students + Enhanced WebAssign with eBook LOE Printed Access Card for One-Term Math and Science 9th Edition 2861 Problems solved Raymond A. 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