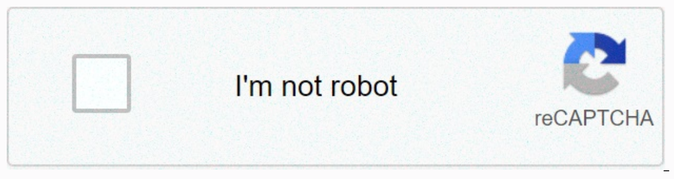

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Answer key math 10 unit 3

1. D EPED C O PY 10 Department of Mathematics Education Republic Philippines This book has been collaborated developed and reviewed by educators from public and private schools, colleges and/or universities. We encourage teachers and other educational stakeholders to send their feedback, comments and recommendations to the Department of Education action@deped.gov.ph by e-mail. We appreciate your feedback and recommendations. Learner Module Block 3 All Rights Reserved. No part of this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 2.2.2015. D EPED C O PY Mathematics - 10th Degree Learners Module First Edition 2015 Republic Act 8293, Section 176 states that: No copyright can be the work of any Philippine government. 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In designing this 10th grade material, she experienced different processes - the development of writers made up of class teachers, school leaders, supervisors, departmental and other institutional professionals; approval of experts, academics and practitioners; review; viewing and language editing of the content of the members of the quality circle reviewer; and terminated under the guidance of consultants. This material contains eight (8) modules. Module 1 - Sequence Module 2 - Polynomics and Polynomic Equation Module 3 - Polynomic Functions Module 4 - Circles Module 5 - Plane Coordinates Geometry Module 6 - Permutations and Combinations Module 7 - Probability Composite Events Module 8 - Instrument Position with Different Activities, provided in each module, you can find this material attractive and complex as it develops its critical thinking and problem solving skills. 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Did you know that awareness of this can help you shape conclusions and make wise decisions? Learn the answers to these questions and discover the wide range of perstatus and combinations through this module. All rights reserved ID: 12355 No part of this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 7.2015. EPED C O PY 276 II. LESSONS AND COVERAGE This module will examine and determine how many available ways to perform certain tasks or select some objects from a collection. Learn about this in the following lessons: Lesson 1 – Permutation Lesson 2 – Combinations In these lessons you will learn: Lesson 1 Illustrate The Rebuilt of Objects; Set a formula for finding the number of restatations of objects taken at the same time, n ≥ r; address problems with restats. Lesson 2 illustrates the combination of n objects; separate the rebuilding from the combination of n objects taken at the same time, n ≥ r; get a formula to find the number of combinations of objects taken at the same time; address problems related to persimmons and combinations. All rights reserved ID: 12355 No part of this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 8.8.2015. D EPED C O PY 277 Here is a simple map of lessons that will be included in the following module: Find n objects taken r during time problems with permutations found n object combinations taken r during problems related to combinations of problems with permutations and combinations permutations COMBINATORICS All rights reserved. No part of this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 9.9.2015. EPED C O PY 278 III. PRE-ASSESSMENT Part I Find out how much you already know about the topics in this module. Select the letter that you think answers the question best. Reply to all items. Pay attention to items that you could not answer correctly, and find the correct answer when you go through this module. 1. The selection of the subset of the set is ___pavyzdys. A. combination C. integration B. Differentiation D. restata 2. Which of these situations or activities is related to the restructures? A. Matching T-shirt and pants B. forming triangles of 5 points on board the plane, not three of which are collinear C. assigning telephone numbers to subscribers D. by forming a committee of the members of the club 3. Positive lower numbers n and all positive integers are _____. A. powers n C. n - factors B. multiple n D. n factor 4. Two different objects, some of which are identical, are called _____. A. Distinguishes the perstructible C. round restructures B. unique combinations D. round combinations 5. How many different 4-digit even numbers can be formed from digits 1, 3, 5, 6, 8 and 9 if repeating digits is not allowed? A. 1 680 B. 840 C. 420 D. 120 6. How many ways can 8 people sit around a round table if two of them insist on sitting side by side? A. 360 B. 720 C. 1440 D. 5040 7. Find the number of distinguishing conversions of the word PASS. A. 4 B. 12 C. 36 D. 144 8 letters. Ms. Santos asked Renz to draw all the diagonals of a certain polygon on the board. Rande was able to draw 27 diagonals, which his teacher declared correct. What was the polygon presented? A. Pentagon C. nonagon B. hexagon D. decagon All rights reserved. No part of

this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 10 2015. EPD C O PY 279 9. Ms. De Leon wants to produce various sets of test issues in her essay test. If she plans to do this by putting together 3 of the 5 questions she has prepared, how many different sets of questions could she build? A. 10 B. 20 C. 60 D. 80 10. If P(9, r) = 3024, what is r? A. 2 B. 4 C. 5 D. 6 11. In the city fiesta singing contest with 12 contestants, how many ways can the organizer host the first three singers? A. 132 B. 990 C. 1320 D. 1716 12. What is P(8, 5)? A. 56 B. 336 C. 1400 D. 6720 13. If P(n, 4) = 5040, then n = ____. A. 12 B. 10 C. 9 D. 8 14. Depending on x = P(n, n) and y = P(n, n – 1), what can be done about x and y? A. x > y B. x < y C. x = y D. x = y 15. Find the number of perbuildings for the distinctive letters of the word EDUCATED. A. 1680 B. 10 080 C. 20 160 D. 40 320 16. If the combined lock must consist of 5 different digits, how many methods code can be formed from digits from 0 to 9? A. 15 120 B. 30 240 C. 151 200 D. 1 000 000 17. How many ways can 4 men and 3 women arrange consecutive shootings if men and women have to stand alternately? A. 5040 B. 720 C. 144 D. 30 18. The room has 10 chairs in a row. How many ways can 5 students sit in chairs in a row? A. 720 B. 600 C. 252 D. 120 19. Which combination does not notice in these situations? A. Selection of 2 songs from 10 audit work B. Setting the schedule of the student group, which must accept exactly 8 subjects C. when some points are connected on board the All Rights Reserved. No part of this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 11 2015. EPED C O PY 280 20. If w = C(5,2), x = C(5,3), y = C(5,4) and z = C(5,5), and in a plane from which none are colinear, we are awarded 5 points, which means the total number of polygons that can be drawn? A. x + y C. x + y + z B. w + x + y D. w + x + y + z 21. C(n, n) = ____. A. n B.r C. 1 D. cannot be determined 22. If C(n, r) = 35, which of the following are possible values n and r? A. n = 6, r = 4 B. n = 7, r = 3 C. n = 8, r = 3 D. n = 9, r = 2 23. If C(n, 4) = 126, what is n? A. 11 B. 10 C. 9 D. 7 24. If C(12, r) = 792, which of the following value is a possible r value? A. 8 B. 7 C. 6 D. 4 25. The catering service offers 3 types of soup, 7 types of main course, 4 types of vegetable dish and 4 types of dessert. How many possible ways can a food tool consist of a meal consisting of 1 soup, 2 main dishes, 1 vegetable dish and 2 desserts? A. 140 B. 336 C. 672 D. 1512 26. How many ways can the 7-student committee of 9 juniors and 9 seniors be chosen if there are 4 seniors in the committee? A. 10 584 B. 1764 C. 210 D. 84 27. Jane wants to solve the equation system through elimination by combining any two equations. The number of equations is equal to the number of variables. She understands that she has 10 possible ways to start her own decision. How many equations does she have? A. 6 B. 5 C. 4 D. 3 28. The breakfast buffet includes 11 different foods. The customer is asked to receive a certain number of items. If the customer has 462 possible ways as a result, which of the further will he possibly do? A. Select 4 of 11 points B. Select 6 of 11 points C. Select 8 of 11 points. Select 7 of the 11 All-Rights Reserved items. No part of this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 12 2015. D EPED C O PY 281 Part II Read and understand the situation below, then answer the question or do what you need. Let's say you graduated from high school, but you didn't have enough money to continue your college education. You decided to work temporarily and save on your school. You turned to Mr. Aquino's restaurant and you were hired. A few days later, you noticed that the restaurant business was not doing very well, and Mr. Aquino asked for your opinion. What you noticed was that the food served in the restaurant was not varied. 1. Prepare a list of various foods that can be served (soup, meat / chicken dishes, fish, vegetables, fruits, desserts, drinks). Consider health and nutritional values. 2. What mathematical concepts are used in this 3. Formulate two problems with mathematical concepts in the situation. 4. Write the equation(s) or expressions describing the situation. 5. Solve formulated equations and problems. 6. Provide a sample menu for the day and explain the reason for your choice. Given that there will be several possible combinations, also explain why you should prepare certain dishes more often or less frequently. All rights reserved ID: 12355 No part of this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 13 2015. D EPED C O PY 282 Rubric about problems formulated and solved score descriptors 6 Poses a more complex problem with two or more correct possible solutions and transmits ideas accurately, shows a comprehensive understanding of the relevant concepts and/or processes, and provides explanations if necessary. 5 Poses a more complex problem and completes all important parts of the solution and accurately communicates ideas, thoroughly understands the right concepts and/or processes 4 Poses a complex problem and completes all the relevant parts of the solution and accurately communicates ideas, shows detailed concepts and/or processes 3 Poses a complex problem and completes the most important parts of the solution and accurately transmits ideas, shows the perception of basic concepts, although ignores or misunderstands less important ideas or details 2 Poses a problem and completes some important parts of the solution and accurately transmits ideas, but shows gaps in theoretical understanding 1 Poses a problem, but shows little understanding, can not create an approach Source : D.O. #73, s. 2012 IV. LEARNING GOALS AND GOALS After passing this module, you should be able to demonstrate an understanding of the basic concepts of the combine, especially permutations and combinations. In addition, you should be able to use precise calculation methods to formulate conclusions and make decisions. All rights reserved ID: 12355 No part of this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 14 2015. D EPED C O PY 283 Start Tutorial 1 of this module evaluating your knowledge of the basic computing technique called basic calculation principle. These knowledge and skills will help you understand the permutations of objects. As you go through this lesson, keep in mind the following important question: How does the concept of permutation help to shape conclusions and make wise decisions? To answer this, perform each activity that follows. If you are having difficulties, seek help from your teacher and peers. Your teacher has checked your work. A. A close friend invited Anna to his birthday Anna has 4 new blouses (strips, ruffles, long sleeves and sleeves) and 3 skirts (red, pink and black) in her wardrobe for such occasions. 1. Assuming that any skirt can be paired with any blouse, how many ways can Anna choose her outfit? List the options. 2. How many pairs of blouses and skirts is possible? 3. Show me another way to find the answer 1 in this 1. B. Let's say you secured your bike using a combined lock. Later, you realized that you forgot the 4-digit code. You just remembered that the code contains the digits 1, 3, 4 and 7. 1. List all available codes from the given digits. 2. How many available codes are there? 3. What can you say about your list? Activity 1: All rights reserved. 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How many ways can Aling Rosa organize 6 potted plants in a row? 4. How many four-digit digits can be formed from the number 1, 3, 4, 6, 8 and 9 if no repeating of the digits is allowed? Activity 2: All rights reserved. No part of this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 16 2015. EPED C O PY 285 5. If there are 3 roads from city A to city B and 4 roads from city B to city C, how many ways can you move from city A to city C and back to city A, through city B, without passing through the same road twice? 6. Suppose that there are 12 elected members of the Board of Directors in a given association. How many ways can the president, vice president, secretary and treasurer be selected from the board? 7. How many ways can you put 9 different books on the shelf if there is enough space for only 5 books? 8. You want to order lunch from the school canteen, which offers student meals consisting of 1 cup of rice, 1 meat dish and 1 vegetable dish. How many choices do you have for your food if there are 3 meat meal choices and 2 vegetable meal choices? How many ways can 5 people take care of consecutive shootings? 10. The owner of the dress store has 8 new dresses, which she wants to display in the window. If there are 5 dummies in the screen window, how many ways can she dress them up? Questions: a. How will you find the answer to each question? What kind of principle have you previously learned? B. Show and explain how you responded to each item. Have you been able to determine the exact number of ways to perform each of the tasks or activities described in your activity? What concept or principle do you use in mathematics? How has this principle been applied? Some of these tasks or activities have similarities or are in a way different from others. How are they different? You will learn how you go through the other sections of this module. All rights reserved ID: 12355 No part of this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 17 2015. D EPED C O PY 286 Take a look at 10 2 operational situations. Determine whether it is important to perform an entity selection activity or task, layout, or order; i.e. whether a different procedure or agreement means a different outcome. Write your answers on manila paper and be prepared to share them in class. Questions: 1. In which 2 operational situations is it important to choose a procedure or layout? 2. Please substantially give an example to each situation. 3. When performing a specific task, when ordering or arranging is important, what do you call each possible agreement? Do this activity using four number cards with different digits. Follow all the instructions and write down all the answers on a clean sheet of paper. Then fill in the table and answer the following questions. A. Get two number cards (Example: 1 and 2). 1. a. Arrange the cards using 1 piece at a time. Example: 1 2 ways 2 b. Illustrate or describe each layout. c. Count the number of measures you have taken. 2. a. Arrange cards using both parts at once. B. Illustrate or describe each layout. c. Count the number of measures you have taken. B. Get three number cards. 1. a. Arrange the cards using 1 piece at a time. B. Illustrate or describe each layout. c. Count the number of measures you have taken using 1 card at a time out of 3 cards given. Activity 4: Activity 3: All rights reserved. No part of this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 18 2015. EPED C O PY 287 2. A. Arrange the cards using 2 pieces at a time. B. Illustrate or describe each layout. c. Count the number of agreements you have made using 2 cards at a time out of 3 cards given. 3. a. Arrange cards using 3 pieces at a time. B. Illustrate or each agreement. c. Count the number of agreements you have made using all 3 cards at once. C. Get four number cards. 1. Repeat steps B.1 to 3. 2. a. Arrange objects using all 4 units at once. B. Illustrate or describe each layout. c. Count the number of agreements you have made using all 4 number cards at once. Tab all results. Results: Number of objects (n) Number of objects taken at the same time (r) Number of available features 2 1 2 2 2 3 1 3 3 3 3 3 4 4 4 4 4 Questions: a. What do you call each agreement? B. Can you find any model of results? c. Can you think of other ways to find these answers? All rights reserved ID: 12355 No part of this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 19 2015. D EPED C O PY 288 How can I find a previous activity? Are you ready to learn about restructure? From the activities you have done, you have recalled the Principle of Calculation principle, which is an essential tool that is not sufficiently related to an agreement or restructure. You have also set up tasks that are important for layout or ordering. How can permutations help solve real problems or draw conclusions and solutions? You'll find out in another activity. Before you do this, first read and understand some important comments about the restatast, including the examples provided. How do I find objects in rebuilt? Let's say we have 6 different potted plants and we want to organize 4 of them in a row. How much can this be done? We can determine how these plants can be arranged in a row, if we organize only 4 of them at a time. Each possible layout is called a restructure. The restructure of 6 potted plants taken at the same time shall be denoted by P(6, 4), 6P4 , P6,4 or 6 4 P Similarly, if there are n objects which will be located at the same time r, it shall be denoted by P(n, r). The restructure of n objects taken at the same time is denoted by P(n, r). In some books it is also denoted by nPr, Pn,r or n r P . In this learning material, we will use the first notation. All rights reserved ID: 12355 No part of this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 20 2015. D EPED C O PY 289 How do I find the number of restatations of objects taken at the same time? Consider the following illustrations: Example 1. Depending on the 4-letter word READ. How many ways can we organize our emails at 3 at a time? Solution: There are 3 positions to be filled in. We write horizontal signs: _ _ _. On each horizontal mark we write how many choices we have when filling this position. There are 4 choices for the first position. After filling the first position, there are 3 choices left for the second position After completing the first and second positions, there were 2 choices left in the third position. So three entries on the horizontal characters would be 4 3 2 We apply the essential principle of calculation and multiply: 4 ◄ 3 ◄ 2 = 24. Thus, there are 24 possible ways to organize 4 letters read taking 3 of them at once. We also say that 4 read letters taken at 3 years have 24 permutations. One of them is R-E-D. Check this result. Let's take a look at the example above. Remember: n = 4, r = 3. 4◄ 3 ◄ 2 = n(n(n – 1)(n – 2) Report that the first factor is n and subsequent factors decrease by 1 each time. Look at the last factor: n - 2 = n – (3 – 1) = n – (r – 1) or n – r + 1. Please also note that there are r-factors in total, starting with example n. 2. The school club has 5 possible choices for president, secretary, treasurer and auditor. Assuming that each of them is qualified in any of these positions, how many ways can 4 officials be elected? Solution: P(5,4) = 5 ◄ 4 ◄ 3 ◄ 2 = 120 ways Number of restated objects taken simultaneously, P(n, r), where n ≥ r are: P(n, r) = n(n–1)(n–2) ◄◄ (n – r + 1) All rights reserved. No part of this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 21 2015. D EPED C O PY 290 Please note that there are other factors. What principle was the formula derived? Can you now answer the problem earlier? Let's say we have 6 potted plants and want to organize 4 of them in a row. How much can this be done? What if there are 5 objects to be arranged and we organize them all every time? This means that n = 5 and r = 5. Example 3: How many ways can 5 people take care of consecutive shootings? Solution: n = 5,r = 5 P(5,5) = 5 ◄ 4 ◄ 3 ◄ 2 ◄ 1 (5 factors) = 120 possible photos We used all numbers n = 5 to 1 in the third example. Another way to write 5 ◄ 4 ◄ 3 ◄ 2 ◄ 1 is 5! (read as 5 factors) Sounds like, 4! = 4◄ 3◄ 2◄ 1 = 24 8! = 8 ◄7◄ 6◄ 5, 4 ◄3 ◄2 ◄1 = 40 320 3! = 3◄ 2◄ 1 = 6 10! = 10◄ 9 ◄8◄ 7◄ 6 ◄5◄ 4 ◄3◄ 2◄ 1 = 3 628 800 1! = 1 For convenience we define 0! = 1. So in example 3 P(5,5) = 5! = 120. In addition, P(8,8) = 8! = 40 320 P(4,4) = 4! = 24. Also, since P(n, r) = n(n - 1)(n - 2)◄(n - r +1) =)! ( )!1)(2)... (1) (((rn rnrnnn 🗐 🗐 🏷🗐🗐🗐 Then, P(n, r) =)! (rn n 🗐 All rights reserved. No part of this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 22 2015. D EPED C O PY 291 Remember: n objects taken r simultaneously, the restatation is: P(n, r) =)! (100 000 ≥ 000 000 000

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LESSONS AND COVERAGE Lesson 1 – Probability of complex events Union and intersection of events Mutually incompatible and mutually exclusive events Lesson 2 – Probability of independent events Lesson 3 – Conditional probability In these lessons you will learn: Lesson 1 Events and union of events and intersections Illustrates the likelihood of a union of two events and the intersection of events illustrates and finds the probabilities of mutually incompatible events Lesson 2 illustrates independent and dependent events Find the probabilities of independent and dependent events Lesson 3 Identify relative probabilities to address problems related to the probability of contingencies in the Union of Complex Events probability and intersection of events Probability of independent events The relative probability of conflicting and conflicting events All rights reserved. No part of this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 52 2015. EPED C O PY 321 III. PRE-ASSESSMENT Part I: Multiple choices Answer all these questions best, what you can do. As far as possible, please provide your decision. Pay attention to items that you could not answer correctly, and find out the correct answer when you go through this module. 1. Brian likes to wear a colored shirt. He has 10 T-shirts in the closet. Three of them are blue, four are of different shades of red, and the rest are of mixed or different colors. What's the chance he'll wear a blue or red shirt? A. 7 4 10 10 ❜ B. 3 4 10 10 ❜ C. 3 7 10 10 ❜ D 7 4 10 10 – 2. On the right side, the spinner is twisted. What is the probability of rotation that results in a number of less than 4 or a number? A. 1 4 B. 3 8 C. 4 8 D. 5 8 3. Jody has four powers of juice – one orange power, one pineapple, one from calamansi and one from guyabano. She chooses three of these powers to take to school. If she chooses calamansi, what is the probability that she also prefers pineapple? A. 7 8 B. 3 4 C. 2 3 D. 3 8 4. A person throws the correct coin eight times and watches if the toss gives his head (H) or tail (T). Which of these sequences brings the head (H) to his next toss? I) T T (II) H H T H T H H A. I C. Neither I nor II B.II D. Or I or II All rights reserved. No part of this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 53 2015. EPED C O PY 322 5. The baby has 5 blocks in the box. One block is red, one yellow, one green, one blue, and the other black. The baby pulls out the block, looks at it and puts it back in the box. If he does it 4 times before he's bored and crawls away, what is the chance that 4 blocks are selected all of the same color? A. 4 5 5 B. 4 1 5 C. 4 4 5 D. 4 2 5 6. The box contains 4 red balls and 6 blue balls. The second box contains 16 red balls and an unknown number of blue balls. One ball is drawn from each box. The probability that both balls are of the same color is 0.44. How many blue balls are in the second box? A. 4 B. 20 C. 24 D. 44 7. The family has two children. Let's say that the birth of each child is an independent event and that it is just as likely that it will be a boy or a girl. Let's C mark the event that the family has one boy and one girl. Let D mark the event that the family has no more than one girl. Which of the further must be correct about events C and D? A.C and D are independent events. B.C occurs in view of the fact that D does not occur. C.C and D are not independent events. D.C and D are conflicting events. 8. A nationwide survey revealed that 42% of the population likes to eat pizza. If two people are randomly selected from the population, what is the probability that the first person likes to eat pizza, and the second - not? A. 0,42 + (1 – 0,42) C. 1 - 0,42 B. 2 (1 – 0,42) D. 0,42 (1 – 0,42) 9. The married couple agreed to continue having a new child until they received two boys, but no more than four children. Assuming that every time a child is born, the probability that he is a boy is 0.5, independent of all other times. Find the probability that the couple has at least two girls. A. 1 2 B. 5 16 C. 5 8 D. 4 15 All rights reserved. No part of this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 54 2015. D EPED C O PY 323 10.Samples of some street foods have been taken and tested for the presence of disease-causing bacteria or harmful chemicals. A random sample of 200 different types of street foods was investigated according to how they were prepared. The following table shows: Number of bacterial foods Number of foods Only number of foods with harmful chemicals Only number of foods with bacteria and harmful chemicals Total fried 35 15 18 68 Cooked 46 14 32 92 Grilled 24 8 8 40 Total 105 37 58 200 a.) What is the probability that randomly selected street food is fried? A. 68 200 B. 35 105 C. 50 142 D. 68 142 b.) What is the probability that randomly selected food is both fried and contains harmful chemicals? A. 40 200 B. 58 105 C. 16 142 D. 16 200 c.) What is the probability that randomly selected food contains both bacteria and harmful chemicals? A. 40 200 B. 58 200 C. 16 142 D. 8 58 11.The group's study of sports viewing habits over the past year revealed the following information: i. 28% watched Football II. 29% watched basketball iii. 19% watched tennis iv. 14% watched football and basketball v. 12% basketball and tennis all 10% watched football and tennis vii. 8% watched all three sports. What percentage of the group watched none of the three sports last year? A. 24 B. 36 36 41 D. 52 All rights reserved. No part of this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 55 2015. D EPED C O PY 324 12.The probability that visiting a school clinic is not for dental reasons or for medical reasons is 35%. Of those arriving at the clinic, 30% are for medical reasons, and 40% - for dental reasons. What is the probability that a visit to a school clinic is for dental and medical reasons? A. 0.05 B. 0.12 C. 0.18 D. 0.25 13.The public health researcher shall examine the medical records of a group of 937 men who died in 1999 and find that 210 men died from causes related to heart disease. In addition, 312 of the 937 men had at least one father with heart disease, and of these 312 men, 102 died of heart disease-related causes. Determine the probability that a man selected by chance from this group died of causes related to heart disease, given that none of his parents had a heart disease. A. 102 625 B. 108 625 C. 312 625 D. 414 625 14.There are four batteries and one of them is defective. The two must be selected at random so that they can be used on a given day. Find the probability that the second selected battery is not defective, given that the first one was not faulty. A. 2 3 B. 1 4 C. 1 3 D. 1 2 15-16: a sample of 150 plastic tubes for impact resistance and shock resistance and shock resistance tests was selected. The results are summarised in the table below. Scratch Resistance Shock Resistance High High 125 12 Low 7 6 15.A pipe selected randomly. What is the probability that it has high impact resistance, given that it has high scratch resistance? A. 125 132 B. 125 137 C. 137 150 D. 132 150 All rights reserved. No part of this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 56 2015. D EPED C O PY 325 16.What are the probability that it has high scratch resistance and high impact resistance? A. 125 150 B. 125 137 C. 137 150 D. 132 150 17.An the insurance agent offers a health plan to the employees of a large undertaking. Under this plan, individual employees can choose exactly two additional A, B and C scopes, or they cannot select any additional coverage. The proportions of the employees of the company who choose A, B and C insurance are 1 4 , 1 3 and 5 12 respectively. Set up the probability that the randomly selected employee will not select any additional coverage. A. 7 9 B. 1 2 C. 47 144 D. 9 144 18.There are 24 dolphins in the ocean park. The warden marks 6 of them with small chips and returns them to the ocean park. Next month, he randomly selects five dolphins from an ocean park. Find the probability that exactly two selected dolphins are marked. Mark. 2 3 5 6 18 24 C B. 3 2 5 6 18 24 C. 3 2 5 6 18 24 P P 2 3 5 6 18 24 P P b.) What were your assumptions in part (a)? Please substantiily confirm your answer. Part II: Troubleshooting Read and understand the situations below to fix the problem. Show me the whole solution. 19.Varsity Try-Out. Let's say you apply as a tennis varsity player to a team. To be accepted, you need to play with the team's good player (G) and top player (T) in three games and win against both G and T in two consecutive games. You have to choose one of two schedules: play G, T, G or T, G, T. Which one should you choose? Why? All rights reserved ID: 12355 No part of this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 57 2015. EPED C O PY 326 20.Food preference study. The school conducts a survey of the choice of food for its pupils at lunch and receives the following information: i. All students want to have at least one viand. ii. 70% of students want to have more than one viand iii. 20% of students want to have fish like viand. iv. Of those students who want to have more than one viand, 15% prefer fish as viand. Find the probability that a randomly selected student wants to have exactly one viand and that there is a fish. Show me your judgment. IV. LEARNING OBJECTIVES AND OBJECTIVES After passing this module, you should be able to demonstrate an understanding of the basic concepts of the probability of complex events, conflicting events, independent events and conditional probability. With these plausible knowledge and skills, you should be able to use probability to formulate conclusions and make decisions. All rights reserved ID: 12355 No part of this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 58 2015. D EPED C O PY 327 Troubleshooting of the number rubric 1 2 3 4 Troubleshooting No strategy is selected or the chosen strategy will not solve the solution. There is little or no evidence that the task is partially correct, or the right strategy is chosen to resolve only part of the task. There is evidence that some relevant previous knowledge could have been supported, which indicates some relevant involvement in the task. The correct policy is selected based on the mathematical situation of the task. Planning or monitoring of the strategy is obvious. There is evidence to support the consolidation and application of previous knowledge in solving problems. Note: At this level, the student must reach the correct answer. An effective strategy is chosen and progress towards a solution is assessed. If necessary, changes to the strategy are made along the way and/or alternative strategies are being considered. Evidence of the mathematical analysis of the situation extended extension of the Involved. Note: At this level, the student must reach the correct answer. The reasoning arguments are made using a mathematical basis. There is no justification for the correct motives or motives. Arguments are based on a specific mathematical basis. There are some justifications for the correct motives or motives. The arguments are constructed on a proper mathematical basis. There is a systematic approach and/or justification for the correct arguments. The decisions are based on the use of demersal arguments and formal evidence may be provided. Evidence shall be used to support and support the decisions taken and the conclusions drawn. Communication About the audience or purpose is not included. There are no formal mathematical terms or symbolic notions. A certain approach shall be understood through oral and/or written reports and explanations. Attempts are being made to use the formal language of mathematics. One formal term of mathematics or symbolic notation is obvious. The transmission of the method is evident through methodical, organized, consistent, sequence and marked response. The formal language of mathematics is used to share and explain ideas. At least two official mathematical terms or symbolic notations are obvious in any combination. The communication of the argument is supported by mathematical properties. The formal language of mathematics and symbolic notation are used to consolidate the thinking of mathematics and transfer ideas. At least one of the mathematical terms or symbolic notations is outside the class level. The No relationship or relationship relationship is mathematically or contextualally insignificant. A mathematical relationship is attempted, but it is partially incorrect or lacks contextual importance. Mathematical connection. Appropriate contexts have been identified that link both the concepts of mathematics and the situation presented in the task. Mathematical connections are used to expand the resolution of other math problems or to understand the concepts of mathematics more deeply. Some examples may include one or more of the following examples: testing and accepting or rejecting hypotheses as an explanation of an expression. Representation No mathematical representation has been attempted. Attempts are being made to create mathematical representation to reset the show and report problems, but it is not accurate. A valid and accurate mathematical view is constructed and improved to solve problems or portray solutions. The right mathematical-thematic image is designed to analyze relationships, expand thinking and explain or interpret a phenomenon. All rights reserved ID: 12355 No part of this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 59 2015. D EPED C O PY 328 Start lesson 1 of this module by evaluating your knowledge and skills about the various concepts of mathematics related to computational methods and the probability of simple events, as well as you have previously studied. These knowledge and skills are important to understand the likelihood of complex events. As you go through this lesson, think about this question, Why do you think there is a probability study important for making decisions in real life? Consider the situation below. To answer the questions below, use your knowledge of probability. 1. Death is rolled once. Find the probability of getting a. a. 5. b. a. 6. c. Odd number. 2. The box contains 3 red balls, 5 yellow balls and 2 blue balls. If the ball is taken randomly from the box, what chance is the ball chosen by a century of yellow ball? b. Red ball? The above activities helped you remember your knowledge of the likelihood of simple events. If you roll to die, the number that you come up with can be 1, 2, 3, 4, 5 or 6. When death is rolled, it can also come down on one face like any other. Therefore, the probability of getting 5 is one of 6. Symbol, we use P (get 5) = 1 6 . Always remember that 1 6 is likely to appear on any of the faces. Activity 1: All rights reserved. No part of this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 60 2015. D EPED C O PY 329 Activities such as die, coin tossing or random ball selection from a box that can be repeated over and over again and which have clearly defined results, are called experiments. The results of the experiment are called results. A set of all experiment results is called a sample space. An event is a subset of a space sample. Simple events: Consider rolling to die. A. As number 5 is called a simple event. B. Getting a 6 is also a simple event. What about the event to get the odd number? Probability of simple events: If each result in the sample space is equally plausible, the probability of event E expressed in P(E) is expressed in the ways in which the event can occur in the number of possible results P E or ◄ the number of results, if the number of results in the sample space P E = All rights reserved. No part of this material may be reproduced or transmitted in any form or by any means, whether electronic or mechanical, including copying, without the written permission of the DepEd Central Office. First edition, 2015 2015.

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