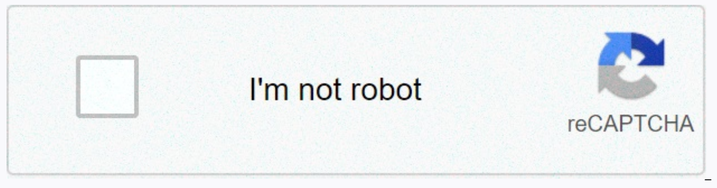

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At least one probability worksheet

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Although one of my students said the question above was wrong, because each child actively seeks red pencil in the first place. Ha!! When you're done with this worksheet, students reveal a solution to a riddle. Problem 1: A coin is thrown three times. Find the probability of getting :(i) 2 heads (ii) at least 2 headsProblem 2: A dice is rolled twice. What is the probability of getting a difference of 2 points? Problem 3: Two dice are thrown simultaneously. Find the probability that the amount of points on the two dice would be 7 or more. Issue 4: What is the chance to choose a spade or an ace of no spades from a 52 pack Issue 5: Find the probability that a four-digit number comprising the numbers 2, 5, 6 and 7 will be divisible by 4.Problem 6: A committee of 7 members must consist of a group of 8 gentlemen and 5 ladies. What is the likelihood that the Committee will :(a) 2 ladies,(b) at least 2 ladies. Problem 7 :O strabismus surgery has a probability of 0.9 success in the first attempt and a probability of 0.98 success in the second attempt. Use tree diagram techniques to find the likelihood that surgery will be successful within two attempts. (round four digits after decimal). Issue 8 :Find the probability that a four-digit number with the numbers 2, 5, 6 and 7 will be divisible by 4. Detailed Answer Key Issue 1: A coin is thrown three times. What is the probability of getting: (i) 2 heads (ii) at least 2 headsSolution:When a coin is thrown three times, first we need enumerate all elementary events. This can be done using the Tree Chart, after shown below: So the elementary events are HHH, HHT, HTH, HTT, THH, THT, TTH, TTT. That is, S = { HHH, HHT, HTH, HTT, THH, THT, TTH, TTT }Thus, the number of elementary events n (e) = 8. (i) 2 heads :D in these 8 results, 2 heads appear in three cases, namely HHT, HTH and THH. If we denote the appearance of 2 heads by event A and assume that the currency, as well as the interpreter of the experiment is impartial, then this hypothesis ensures that all eight elementary events are equally likely. Then, by the classical definition of probability, we haveP(A) = n(A) / n(s)P(A) = 3/8 P(A) 0.375 or 37.5%(ii) at least 2 heads :Let B denote the appearance of at least 2 heads, i.e. 2 heads or 3 heads. Since 2 heads appear in 3 cases and 3 heads appear in only 1 case, B occurs in 3 + 1 or 4 cases. By the classical definition of probability,P(B) = 4/8P(B) = 0.50 or 50%Problem 2:A dice is rolled twice. Find the probability of getting a difference of 2 points. Solution :D that an experiment results in p results and if the experiment is repeated q times, then the total number of results is pq. In this case, because a dice results in 6 results and the dice is rolled twice, totally not. of elementary results or events is 62 or 36.We assume that the dice is impartial, which ensures that all of these 36 elementary events are just as likely. Now, a difference of 2 points in the highest sides of the dice thrown twice can occur in the following cases: Thus, denoting the case of getting a difference of 2 points of A, we find that no. favorable results to A, in the table above, is 8. By the classic definition of probability, we getP(A) = 8/36P(A) = 2/9Problem 3:Two dice are thrown simultaneously. Find the probability that the amount of points on the two dice would be 7 or more. Solution: If two dice are thrown, then, as explained in the last problem, total no. of elementary events is 62 or 36. Now, a total of 7 or more i.e. 7 or 8 or 9 or 10 or or 12 can occur only in the following combinations:Sum = 7 -----> (1, 6), (2, 5), (3, 4), (4, 3), (5, 2), (6, 1)Amount = 8 -----> (2, 6), (3, 5), (4, 4), (5, 3), (6, 2)Amount 2)Amount 9 -----> (3, 6), (4, 5), (5, 4), (6, 3)Amount = 10 -----> ((4, 6), (5, 5), (6, 4)Amount = 11 -----> (5, 6), (6, 5)Amount = 12 -----> (6, 6)Thus, no. Renting a stand for obtaining a total of 7 points or more, we haveP (A) = 21/36P(A) = 7/12Problem 4: What is the chance to choose a spade or an ace of no spades from a deck of 52 cards? Solution: A deck of 52 cards contains 13 spades, 13 hearts, 13 clubs and 13 Diamonds.Each of these groups of 13 cards has an ass. Therefore, the total number of elementary events is 52 of which 13 + 3 or 16 are favorable to event A representing the choice of a Spade or not an asof. we haveP(A) = 16/52P(A) = 4/13Problem 5: Find the probability that a four-digit number comprising the digits 2, 5, 6 and 7 would be divisible by 4.Solution: Since there are four digits, all distinct, the total number of four-digit numbers that can be dialed without any restriction is 4! or 4 × 3 × 2 × 1 or 24.Now a four-digit number would be divisible by 4 if the number formed by the last two digits is divisible by 4.This can happen when the four-digit number ends with 52 or 56 or 72 or 76.If we set the last two digits of 52, and then the first two places of the four-digit number can be filled using the remaining 2 digits in 2! or 2 modes. I mean, 67527652Aa, there are 2 four-digit numbers that end with 52.Proceding in this way, we note that the number of four digits that are divisible by 4 is 4 × 2 or 8.If A denotes if any four-digit number using given digits would be divisible by 4, then we haveP (A) = 8 / 24P(A) = 1 / 3Problem 6:A committee of 7 members is to be made up of a group consisting of 8 gentlemen and 5 ladies. What is the probability that the committee would include :(a) 2 ladies, (b) at least 2 ladies. Solution: Since there are a total of 8 + 5 or 13 people, a committee consisting of 7 members can be formed in13C7 = 13C6 = (13x12x110x10x10x9x8) / (6x5x4x3x2x1)13C7 = 11x12x1313C7 = 429(a) 2 ladies :When the committee is formed by taking 2 ladies out of 5 ladies, the rest (7-2) or 5 members of the committee must be selected from 8 gentlemen. Now 2 out of 5 ladies can be selected in 5C2 modes and 5 out of 8 gentlemen can be selected in 8C5 modes. Thus, if A denotes the event of having the committee with 2 ladies, then A may appear in 5C2 x 8C5 ways5C2 x 8C2 = 5C2 x 8C35C2 x 8C5 = 10 x 56 5C2 x 8C5 = 560 Therefore, P(A) = 560 / 1716 = 140 / 429(b) at least 2 ladies :D why the minimum number of ladies is 2, we can have the following combinations: Thus, if B denotes the case of having at least two ladies in committee, then B may appear in = (5C2 × 8C5) + (5C3 × 8C4) + (5C4 × 8C3) + (5C5 × 8C2)= 1568 modes So P(B) = 1568/1716P(B) = 392/429Problem 7 :O Surgery has a probability of success in the first attempt and a 0.98 probability of success in the second attempt. Use tree diagram techniques to find the likelihood that surgery will be successful within two attempts. (round four digits after decimal). Solution : When we go through the question, we need to look carefully at the deadline within two attempts. We will be answered to our question within this period. Within two attempts, less than two tests shall be made. I mean, no. of tests allowed for success = 0, 1We can not achieve success in 0 attempts. (That is, without any attempt, it is impossible to be successful) In order to satisfy the condition within two tests, possible No 1 of the Annex to Regulation (EEC) No 2081/92, the Following Shall be required to ensure that the conditions for tests can be made to achieve success = 1. From the tree diagram above, it is very clear that the probability of success in the first attempt is 0.9.So, the probability that surgery will be successful in two attempts is 0.9.Problem 8 :Find the probability that a four-digit number comprising the numbers 2, 5, 6 and 7 will be divisible by 4. The :D there are four digits and all the digits are distinct, the total number of four-digit numbers that can be dialed without any repetition is = 4!= 4 x 3 x 2 x 1 = 24Then, n(S) = 24Now a four-digit number would be divisible by 4 if the number formed by the last two digits is divisible by 4. This can happen when the four-digit number ends with 52 or 56 or 72 or 76. If we fix the last two digits by 52, and the first two places of the four-digit number can be filled using the remaining 2 digits of 2! or 2 modes. That is, (6752, 7652)So there are 2 four-digit numbers that end with 52.Doing so, we find that the number of four-digit numbers that are divisible by 4, after follows. (2756, 7256) (5672, 6572) (2576, 5276) So there are 8 four-digit numbers that are divisible by 4. Let A denote the event in which any four-digit number using the numbers 2, 5, 6 and 7 would be divisible by 7. Then, P(A) = n(A)/n(S)P(A) = 8/24P(A) = 1/3 Apart from the above, if you need any other things in mathematics, please use our custom google search here. If you have any feedback about our math content, please email us: v4formath@gmail.comWe always appreciate your feedback. You can also visit the following web pages on different things in mathematics. 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