Binomial expansion questions and answers pdf

Textbook Content/Mathematics/Exam Issues - Binomial Extension, Other Download PDF for Future Links Set our Android app to facilitate access Click below to download the full form of Mathematics 3 Topical Issues Review and PDF Answers document, with all topics. Download Mathematics Form 3 Topical Review Questions and PDF Answers for Printing or Offline Reading Get Review Books on Mathematics Form 3 Topical Issues Review and Answers Issues Expand (1 - 3x)5 se Your Extension to Score a Value of 0.997 Correct to 4 d.p. Expand (5 and x/2) to term in X3 Use your extension to estimate the correct value to one decimal place Expand (3 and 2x)6 until the fourth term Use your extension to estimate:- (3√3)6 Two bones are thrown once and their amount is marked. Find the odds that the amount is odd Find the length of PR in the PR triangle of 12cm, a 8.4cm angle of 35o and a PR angle of 75o leaving your answer correct for decimal places Use binomial extension to score (2'3/x)5 before the fifth term, Expressing 9.5 in form (2 x 3/x), use the extension in a) above to calculate (9.5)5 correctly to 3 d.p Use an extension (x - 0.2)5 to find the exact value of 9.85 Solve for x in the equation; magazine (x No. 24) 2 logs 3 and journal (9 - 2x). Expand (1 x/12) in ascending powers x to the fourth term. Use four terms to estimate (5/4)6 to 4 ten lethal locations. Expand and simplify the binominal expression (1 x 1/2 x)8 Use the extension to the fourth term to evaluate (1.05)8-2 decimal places Expand (3 x)4 in ascending power x. Use the first three terms of extension to evaluate (3.02)4, correct to 3 decimal places 15 x 5 (-3x)1 - 10 (-3x)2 - 10 (-3x) 3 5 (-3x)4 (3x)51 - 15 x 90x2 - 270x3 - 405x4 - 243x 51 - 15x 90x2 - 270x3 - 405x4 - 243x5 3x 1 - 0.997x 0.001 1 - 15 (0.001) - 90 (0.001)2 -270 (270 (0.001)0.0.0.0. 001)3 405 (0.001)4' 1 - 0.015 - 0.00009 - 0.00000027 ..... 0,00027 1.00009 - 0.01500027 0.98508973 -0.9851 (4 d.p) 5 2 3 4 2 X = 1(11)6= 15625 + 3125 + 9375 + 625 2 3 4 215625 + 1041.667 + 2343.75 + 312.5 (√3 + 2x)6= (√3)6 + 6 (√3)5 2x + 15 (√3)4 (2x)2+ 20 (√3)3(2x)3= 27 + 108x√3 + 270x2 + 480x3√3√3+ 2x = 3√3√(2x) + 2√3x = 327 + 108√3√3 + 270√32 + 480 √3(3)3= 27 + 324 + 810 + 4320= 5481 1 2 3 4 5 6 1 2 3 4 5 6 2 3 4 5 6 7 3 4 5 6 7 8 4 5 6 7 8 9 5 6 7 8 9 10 6 7 8 9 10 11 7 8 9 10 11 12 P(Sum odd) = 18/36 = 1/2 ∠PQR = 180 – (35o + 75)= 70oPR2 = 122 + 8.42 – 2(12)(8.4) Cos 70oPR = 145.61 = 12.07 Terms; 25, 23(3/x)2 , 22(3/x)3, 23(3/x)4Co eff 1, 5, 10, 10, 5(2 + 3/x)5 = 25 + 5(2)4(3/x) + (2)3(3/x)2 + 10(22) 3/x)2 + 5(2)(3/x)= 32 + 2140x-1 + 720x-2 + 1080x3 + 820x -4 9.5 = 2+ 3/x3/x = 7.5x=3/7.5= 0.4(9.5)5= 32 + 240 + 720 + 1086 + 810 0.4 (0.4)2 (0.4)3 (0.4)4= 53647.625(3d.p) X5 – 5x4 (0.2) + 10x3 (0.20 – 10x2 (0.2)3 + 5x (0.2)4 – (0.2)5X5 – 5x4 (2/10)2 + 10x3(2/10)2 – 10x2(2/10)3 + 5x (2/10)4 – (2/10)5+ x5 – (4/10)x3 – (8/100)x2 +5 x 16 – 25/105X5 – x4x3 – 8/100x2 + 80x – 25/10590, 392, 079 Log (x +24) = log(x(9-2x)X + 24 = 81-18xX =3 1 + x = 1 + x + 5x2 + 5x3 12 2 48 432(1 + x/12)6 = 11/4x/12 = 1/412x = 35/4 = 1 + 3/2 + 9/48 + 27/432= 2.7500 (1 +1/2)8=1+ 8(1/2) + 28(1/2 x)2+ 56(1/2 x)3 + 70 (1/2 x)4 567 (1/2 x)5 th 2 (1/2 x)6 x 8 (1/2 x)7 7x3 - 4,375x4 - 1.75x5 - 0.4375x6- 0.4375x6- 0.0625h7 - 1/256 x8 (1.05)8 , 1 - 4 (0.1) 7 (0.1)2 x 7 (0.1)3 1 0.4 x 0.07 x 0.0074 ... 1 x 108x x481 x481 x 108 (0.02) 54 (0.02)3 83,182 This pdf is a sheet covering expansion (1st axe) for all n. There are 5 basic issues divided into 20 under questions - perfect for class work, homework or revision. The questions were asked in the same way that exam questions and students are expected to turn this expression into a (1st axe) of, often a more complex prospective expression involving square roots and/or reciprocity. This work covers everything that a student of the 'A' level is expected to know. The answers are included. Binomial expansion refers to the expansion of expression, which includes two terms put together and raised to power, i.e. . Before you learn to perform a binomial extension, you need to understand factor notation and be familiar with Pascal's triangle. Factor notation When you see an exclamation point after a number in math it is known as factor. For example, 6! said: 6 factor, and you multiply all the positive integers less than 6 together: Here are a few more examples: Pascal Pascal Pascal's triangle triangle Pascal Pascal is a pyramid of numbers where each series is formed by adding together two numbers, which are directly above it: 0th row: 1st row: 1 1nd row: 1 2 1 3rd row: 1 3 3 1 4th row: 1 4 6 4 1 5th row : 1 5 10 10 5 1 6th row: 1 6 15 20 15 6 1 7th row: 1 7 21 35 35 21 7 1 Triangle continues along this path, named after A mathematician named Blaise Pascal (learn more about Blaise Pascal) and is useful when performing binomial extensions. Note that the 5th row, for example, has 6 entries. As in the 0th row, the first entry in one row is the 0th record. Consider the first 15 in the 6th row, we call it, pronounced 6 pick 2. It can also be written as. In general, we write or and calculate, as it happens from summing up all the terms above the record and simplifies to a faction with factorial. can be seen as a number of combinations of putting r balls in n buckets. This is also the number of times you get a deadline in the extension. Thus, this is why Pascal's triangle is useful in Binomial Expansion. Note that there is a button on the calculator to develop - you don't have to calculate individual factors. You may also notice that and always. Binomial expansion Suppose that now that we want to expand, ie find a binomial extension. In the simple case that n is a relatively small integer value, the expression can be extended one bracket at a time. See Examples 1 and 2 below. Example 1 Notice of expansion that the coefficients of this expansion correspond to the third row of Pascal's triangle. Example 2 The use of example 1 expands with extension in example 1. Note that the coefficients of this expansion correspond to the 4th row of Pascal's triangle. Expanding manually for big n becomes a tedious task. The Edexcel Booklet formula provides the following formula for binomial expansion: where (see above) when, i.e. when is a positive integer. Directly replacing x instead of a and y instead of b results in the search for extensions for large n. Usually only the first few terms are required - see Example 3. You can replace other expressions or numbers with a and b, and you may be asked by the ascending or downward forces of a particular variable. See example 4 - you'll notice that when there are also coefficients inside the brackets, the expansion odds change dramatically as they are shown in Pascal's triangle. Example 3 Find the first three terms in the extension. There are several ways that this can be done. First, we could find the first few entries in the next row of Pascal's triangle (1, 8, 28, etc.) and use them as coefficients: Alternatively, and recommended because we don't always have Pascal's triangle, and it could be a line much lower down, calculate the ratio using the formula: . . Example 4 Find the first three terms, in the downward power x, binomial expansion. This can be done with the formula above. Make a direct substitution as follows: a'2x, b'4 and n'5 and take the first three terms. Note that both (or seen in Pascal's triangle) and so the formula becomes now a check examples below to see what exam exam it might look like. Attitude to pro-probability Consider a binomially distributed random variable with n tests and probability of success p - see if we require r tests to be successful (probability), we require that the remaining n-r tests be unsuccessful (probability). The number of combinations in which r successes can be from n trials (see above). Finally, the associated probability is given when seen on the Binomial distribution page. More Binomial Examples of Expansion Statistics Example Consider a binomially distributed random variable. Find probability in terms of x. Write your answer as polynomial in x. Using the formula: We can use the example 2 above to expand : Click here to find questions on the topic and scroll down to all past BINOMIAL EXPANSION exam questions to practice a few more. Are you ready to test your knowledge of pure mathematics? Visit our Practical Documents page and show your own StudyWell Clean Mathematics tests. Updates New StudyWell July 2020: Integration polynomials exam questions binomial theorem states a formula for expressing the powers of the amounts. The most concise version of this formula is shown directly below. Isaac Newton wrote a generalized form of The Binomial theorem. However, for quite some time pascal's Triangle was well known as a way to expand the binomials (ironically, Pascal of the 17th century was not the first person to know about Pascal's triangle) the easiest way to understand the binomial theorem is to first just look at the picture of the polynomial extensions below. (x y)2 x2 x 2 x 2x2 (x y)3 x3 x 3 x 3x2y 3xy2 y y3 (x y)4 x4 x 4x3y 6x2y2 - 4xy3{2}{3} - y4 Generalized formula for the template above known as the $$right binomial theorem) 3 x 35 (3x) 4 frak -8{27} 35 kdot 333 cdot 3x4 cdot frac 8 {27} 35 udot 27 3 x 4 frac-8 {27} 35 cdot cancel the color red {27} 3x'4 cdot frac-8 (cancellation of color) red (z 27) $$$$$$$In which of the following binomials, there is a term in which exhibitors x and y equal? a) $$-left (x-y'right) {6} $$$(b) $$-left (x-2y'right) {7} $$$$-left (2x-y'right) {9} $$$$ (d) $$'left (2x-3y'right) - {12}$$ Number of terms in $$'left (a'b'right) $$ or at $$-left (a-b'right) $$ always equals n No.1. So when n is an even number, then the number of terms (n No. 1) is the odd number. When the number of terms is strange, that is the average term in the expansion in which the exhibitors a and b are the same. Only in (a) and (d) there are terms in which the factors are the same. Find a third term in $$-left (a-s'sqrt{2} right) {5} $$ $1 $$a-{3} (frak5! {2!3!} (right) on the left (a-{3} right) left (-quart{2} right) {2} $$$2 $$a-{3} th left (4 times 5 times 3!} (right) left (a-{3} right) left (quart{2} (right) {2} $$Step 3 Replace $$-left (-sqrt{2} (right) {2} $$ on 2. Divide the denominator and numerator into 2 and 3!. $$a-{3} (left (2'times 5'right) left (a'{3} (right) 'left (2'right) $$$4 Step 4 Multiply odds. $$-1 {9}, 9, 36, $84 and $126.$ and $126., $126. $1, 9, 36, $84 and 126. Without expansion, binomial determines the odds of the remaining terms. that can help us determine the odds of the rest of the terms. Variable m and n have no numerical coefficients. Thus, these figures are the result of calculating the coefficient formula for each semester. The power of the binomial is 9. Thus, the number of terms is 9 and 1 and 10. Now we have the odds of the first five terms. According to the binomial formula, when the number of terms is equal, the ratios of each of the two terms, which are at the same distance from the middle of the terms, are the same. So, starting on the left side, the odds will be as follows for all terms: $1, 9, 36, 84, 126 126, 84, 36, 9, $$ 1 What is the fourth term in $$-left (frak-a-b frakbright) - {6} $$? Step 1 $$a{4} left (Frak 6!) {3!3!} (right) left (fracaabub) {3} (right) {3} $$$Step 2 Expand the coefficient and apply exhibitors. $$a {4} (fracas 4 times 5 times 6 times 3! 2 times 3 times 3! (right) on the left (Frak-a-{3} kb-{3}) on the left (Frak-b-{3} za-a-{3}) $$Step 3 Divide the denominator and numerator by 3! and six. $$a-{4} (4'times 5'right) left (Fracaa {3} zb'{3}) {3} for {3} th right) $$$4 Divide denominators and numerators at $$$$$$${3}$$ and b$-{3}$$. $$a-{4} (4'times 5'right) left (frak{1}{1} right) on the left (frak{1}{1} right) $$Step 5 Multiply odds. What is the $$a-{4} $$in $$'left (a'2'right) {6} $$? Step 1 $$a-{4} frac6! 2! left (6-2)! (left ({4}) (left) (2'{2} (right) $$Step 2 $$a-{4} frak 5 times 6 times 4! left (2) right (4!) (left (a-{4} right) $$Step 3 Divide the denominator and numerator at 2 and 4!. $$a-{4} (5'times 3'right) left (a'{4} right) left (4'right) $$ Step 4 Multiply odds. $$a-{4} $60a-{4} $$$$$$$$$a ${4}$$$$$.60$.$.$. Add a fourth term of $$-left (a'1'right) {6} $$ to a third term in the $$-left (a'1'right) {7} $$.$.Step 1 Fourth Term Binomaly. : $$a-{4} on the left (frak6! {3!3!} (right) left ({4} right) {2} $$Step 2 $$a-{4} th on the left (4 times 5 times 6 times 3! 2 times 3 times 3! on the left ({4}) left (1)right) $$ Step 3 Divide the denominator and numerator by 6 and 3!. Step 4 Third term of the second binomial: $$a-{3} th left (frak7! {2!5!} (right) on the left ({5} $$5 $$a-{3} left (frak 6 times 7 times 5! 2 times 5! on the left (a-{5} right) left (1)right) $$ Step 6 Divide the denominator and numerator by 2 and 5!. Step 7 What are the two average terms $$2a (2a-3'right) {5} $$? Step 1 Extension of this expression has 5 and 1 and 6 terms. Thus, the two average terms are the third and fourth terms. Use the formula. $$a_{3} left (frac5! {2!3!} Right) on the left (8a-{3} right) left (9)right) $$ Step 2 Replace 5! 4 $$'times$5 $'times$$3!, and 2! No 2. $$a-{3} left (frak 4 times 5 times 3! 2 times 3! (right) (8a-{3} right) (right) $$Step 3 Divide the denominator and numerator by 3! and 2. $$a-{3} (left (10) left (8a-{3} right) $$Step 4 Multiply all odds. Step 5 $$a-{4} left (frak5! {2!3!} (right) left ({2} right) left (-27) $$$Step 6 Replace 5! 4 $$'times$5 $$'times$$3!, and 2! No 2. $$a {4} left (frak 4 times 5 times 3! {3!2!} (right) (4a-{2} right) (left (27) right) $$ Step 7 Divide the denominator and numerator by 3! and 2. $$a-{4} (left (10)left (4a-{2})left (27) $$$Step 8 Multiply all odds. Pascal Triangle (another way to expand binomials) Error : Please click on Not a Robot and then try to download again. binomial expansion questions and answers pdf. binomial expansion questions and answers pdf a level. ib binomial expansion questions and answers pdf