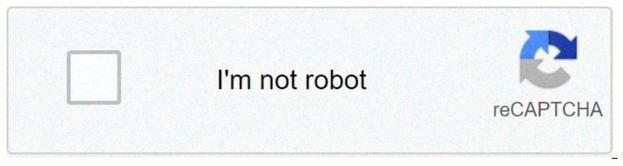

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Virtual business sports and entertainment answer key

Balanced solution C> œ Þ&a b 5. The hill will Î# :9=3tive, and hence the solution is more for C Î# hill, and hence the solution is reduced. All solutions differ from www.ziie.ir 2 —————— ——CHAPTER 1. œ Î#a b 6 . The whole solution differs from the balance solution C > œ #a b 8. For the solution to approach the balanced solution, we need to have C> œ #Î $b C ! #Î$ C ! C #Î$w w for and for For $Cw different solutions, it must be >C > œ # C >a b function b for and functions for The easiest difference # C #decreasingที่โซลูชันเป็นไปตามเกณฑ์เหล่านี้คือ .C œ C #w 10 . The desired rate is satisfied by the difference of Î$ C ! equation Please note that for and for the solution, both balance is andC œ! $C œ & C > œ !w b C > œ & C ! C &b. depends on the direction field for; For , aregreater hill & c & c & œ;! C & b is negative between and hence the solution with default and all the drops further! & www.ziie.ir 3. —————— ——CHAPTER 1. ___ C> œ!a b 14. Cœ #C > œ!w a b and .s) depending on the direction field for #C #aค่า; C #a B is positive during and hence the solution has a default and all the increases further! Therefore, the solution has a default value than the solution of less at C> œ!a b 16. The drug is administered into the body at a rate > 2< = & !! Constant b 71Î2<Þ the rate at which the bloodstream drugs are obtained by theleaves so! Þa b accumulation of the drug explained by different equations Q.> œ & !! ! After discussion in the text, the different equations are b + www.ziie.ir 4 —————— ——CHAPTER 1 . ÞAfter for a long time, so the object achieved terminal speed by.@.> The desired relationship is ##_ค่าสัมประสิทธิ์การลาก b. 19 All solutions seem to be approaching linear asymptote it's easy toa bA3>2 = 69:/ / ; ?6 >9 Check as c solution > œ> $a b 20. www.ziie.ir 5. —————— ——CHAPTER 1. All solutions appear from the sinus lloyd difference C> œ =38Ð> Ñ b$ # %È 1, which is the solution corresponding to the default C! œ &Î#a b 25 all solutions seem to converge with, firstly the change rate —————— —— www.ziie.ir is small. Page 6 field direction is quite complex. However, the collection of sloped field points is obtained by the implied equation, the graph of the Cerro C 'C œ #> Þ$# these points are shown below: of these curves are at , . . it is based on that for solving the problem with c œ interception! Default È All solutions increase without boundaries For solutions with a default value, C 'È in range, the hill remains , andC ' C 'È Èand negative, so these solutions are reduced without boundaries. Solution with default conditions during ' C ! Increase in the first place. When the solution reaches the key value stipulated by the equation, the slope becomes negative and negative. These things 'C œ #> $ # continue the solution, eventually falling without boundaries. www.ziie.ir 7. —————— ——CHAPTER 1. __ C & C œ .> Þ . œ - / C! œ C> . Therefore, the solution is - œ & C C > œ & C & /Þ ! All solutions seem to converge with a balanced solution C> œ& Þa b 1 write a new distinct equation asa b-Þ .C! #C œ .> Þ combining both sides of this equation to yield results as or 68! #C œ > -k equivalent > ; The use of the default condition results in the definition of ab at a constant, so the solution is - œ & C > œ & C & /Þ! All solutions seem to converge with a balanced solution, but at a faster C&œ&b rate in the problem 1a Þ 2 different equations can be rewritten asa b + Þ www.ziie.ir 8 —————— ——CHAPTER 1. & œ .> Þ การรวมทั้งสองด้านของสมการนี้ให้ผลลัพธ์เป็น หรือเทียบเท่ากับ 68 C & œ > -k k C & œ - / C ! œ C> . การใช้เงื่อนไขเริ่มต้นผลในข้อกำหนดของabที่ ค่าคงที่เป็น ดังนั้นการแก้ปัญหาคือ - œ C & C > œ & C & / Þ! !b b > โซลูชันทั้งหมดดูเหมือนจะแตกต่างจากสารละลายสมดุล C > œ & b 2 เขียนสมการส่วนที่แตกต่างใหม่ asa b, Þ . C #C & œ .> Þ การรวมทั้งสองด้านของสมการนี้ให้ผลลัพธ์เป็น หรือเทียบเท่ากับ # 68 #C & œ > -k k #C & œ - / C ! œ C#> . การใช้เงื่อนไขเริ่มต้นผลในข้อกำหนดของabที่ ค่าคงที่เป็น ดังนั้นการแก้ปัญหาคือ - œ #C & C > œ #Þ & C #Þ & / Þ! !b b #> โซลูชันทั้งหมดดูเหมือนจะแตกต่างจากสารละลายสมดุล C > œ #Þ&a b 2 . สมการที่แตกต่างสามารถเขียนใหม่ asa b- . C #C ! œ .> Þ การรวมทั้งสองด้านของสมการนี้ให้ผลลัพธ์เป็น หรือเทียบเท่ากับ # 68 #C ! œ > -k c & œ - / C ! œ C#> . การใช้เงื่อนไขเริ่มต้นผลในข้อกำหนดของabที่ ค่าคงที่เป็น ดังนั้นการแก้ปัญหาคือ - œ C & C > œ & C & / Þ! !b b #> www.ziie.ir 9. —————— ——CHAPTER 1. __ C > Write a differential equation asa b+ new C +C œ .> which works with combining both sides, yielding results , orC Á, 68 , +C œ > - + k k equivalent. Therefore, the general solution is +C œ - / C > œ , - / Î+ Þ +> +> b Please note that if then and is a balanced solution C œ ,Î+ CÎ.> œ! The convergence rate of all solutions, that is, also increases + when the solution is balanced, b33 , C > œ, Î + a b is also larger. In this case, the convergence rate remains the same. If and both increase b b333 + b, but fixed Î + œ, then the balance solution C > œ, Î + a b remains the same, but the convergence rate of all solutions increases. 5. Consider a simpler equation, as in the previous solution, re-a b + .C Î.> œ +C write equation as C C œ + .> Þ . œ C > 5Now set and replace it as a different equation. We found that w.ziie.ir 10 —————— ——CHAPTER 1. ___ _ œ + C 5 , a b . œ - / ,Î+ Þ. วิธีแก้ปัญหาทั่วไปของสมการที่แตกต่างคือนี่คือ + >รูปแบบที่กำหนดโดย Eq ในข้อความ เรียกเงื่อนไขเริ่มต้น, b b(C! œ C! การแก้ปัญหาอาจจะแสดงเป็น C > œ, Î + C , Î + / Þa b! +> 6 . ทางออกทั่วไปคือ .a b + : > œ *!! - / : > œ *!! : *!! /> >Î# Î# ! ด้วย โซลูชันเฉพาะจะกลายเป็น วิธีการแก้ปัญหานี้เป็น: œ)&! : > œ *!! &!/! Î# b >กำลังสองและด้วยเหตุนี้เวลาของการสูญพันธุ์จึงเท่ากับจำนวนเดือนที่ใช้พูดเพื่อให้ประชากรไปถึง Solution we found > &!/ œ!0 Î# zero >0 > œ #68 *!! œ &Þ()0 b.months a b, : > œ *!! : *!! / The solution is exponential as long as! : *!! / œ !! ! Î# . œ #68 Þ *!! การตั้งค่า สมการอาจถูกเขียนเป็น > œ #0เดือน *!! *!! : œ / ! ' ซึ่งมีทางออก เนื่องจากเป็นประชากรเริ่มต้นที่เหมาะสม: œ)*(Þ ('* :! คำตอบคือ .: œ)*)! หนู 7. ทางออกทั่วไปคือ ขึ้นอยู่กับการอภิปรายในข้อความเวลา isa b b + : > œ : / >! <>วัดเป็น ของ สมมติว่าสมมติฐานสามารถแสดงวันเดือน asmonths œ $! : / œ #: < œ= 68= #!= !=> <† .= solving= for= the= rate= constant,= ,= with= units= ofa= b= per= month= .= a= b,= r= œ= rî$!.= days= months= .= the= hypothesis= is= stated= mathematically= as= := œ= #:!= !=></†> <N 0= .= it= follows= that= ,= and= hence= the= rate= constant= is= given=></N> <RÎ$! œ= 68= #=></RÎ$!> < œ= $!= 68= #= îr= þa= b= a= b= the= units= are= understood= to= be= .per= month= 9= .= assuming= ,= with= the= positive= direction= taken= as= ,a= b+= no= air= resistance= downward= newton's= second= law= can= be= expressed= as= 7= œ= 71= .@= .=> ซึ่งอยู่ในMeasure as an appropriate unit. The equation can have a gravitational constant. —————— ——CHAPTER 1. ____ Page 11 written as with solution objects will be released with an.@Î.> œ 1 @ > œ 1> @ Þa b! Let's say the object is released from above ground height. The use of the fact that it belongs to an object obtain@ œ BÎ.> B down different equations for displacement as well as the source placed at BÎ.> œ 1> @ Þ! The point of release, the inclusion directly results in a quote from > B 1> Î# @ >a b # ! the coordinate system selected object will reach the ground when giving time B > œ; œ Xa b that requires objects to reach the ground, then use 1X Î# @ X œ 2# formula two is solving the problem for , Xœ Þ #12 @ 11! è The answer corresponds to the time it takes for the object to fall to the ground of the positive negative answer, indicating immediately earlier that the object can be launched up, only eventually to drop with speed, bwith the same effect speed @! From above ground height 2 units b- >2x@>+Þ.the shock speed is calculated by replacing the part, that is , @X œ @ #12a b È ! !! - b the value of the constant is determined by, so the dose of thorium-234 mg available at any time can be obtained by . œ)#Þ!% œ !! / Þ < find= that= or=> < œ= = 68=)#þ!%i!!= œ= þ*(*=> < œ= þ!#)#)a= b= eek= ay= a= b-= x.= let= be= the= time= that= it= takes= the= isotope= to= decay= to= of= its= originalone-half= amount.= from= part= ,= it= follows= that= ,= in= which= .= taking= thea= b+= &!= œ= !!=> < œ=> <X eek= natural= logarithm= of= both= sides,= we= find= that= orx= œ= $þ&!%= x= œ= #%þ&weeks= s= ..+c= 11.= the= general= solution= of= the= differential= equation= is= ,.uî.=> œ < u=u=> œ U /a b! <> which is the initial volume of the substance, it is time to use U œ u at b 7 substances to decompose the original amount. Settings in half u> 7 Solution, we have of the natural stripping of the two sides it follows! œ U /! <7 =></7> < œ= 68= !þ&=> < œ= 68= #= þ7= 7a= b= or= www.ziie.ir= 12.= —————— = ——chapter= 1.= —————— = page= 12= 12.= the= differential= equation= governing= the= amount= of= radium-226= is= ,.uî.=> œ < U with solution Using the u= with= solution= using= the=></ U with solution Using the > </X>In issue 11 and the fact that U > œ U! / Þa b b <>Half life decay rate is obtained from 7 œ '#! < œ 68 #Î#!year-on-year b radius number-226, After a year, so let's > U > œ U! / Þ Xa b !!! !!!! Time, it is based on that or !!!! œ 68 $Î% X œ '(#Þ$'a b ปี . 13.การแก้ปัญหาของสมการที่แตกต่างกัน, กับ, เริ่มที่ œ !a b U > œ GZ / Þa b b ÎGV> เป็นคำเอ็กซ์โพเนนเชียลหายไปและด้วยเหตุนี้ค่าจำกัดคือ .> p _ U œ GZP 14 . อัตราของสารเคมีคือ ที่ anya b b + Ð! Þ! Ñ $!! การสะสมกรัมต่อชั่วโมงเวลาที่กำหนด, ของสารเคมีในบ่อคือ> U > Î!ความเข้มข้นกรัมต่อแกลลอน b ' ดังนั้นสารเคมีในบ่อในอัตรา .ใบกรัมต่อชั่วโมง b b $ '! U >% ดังนั้นอัตราการเปลี่ยนแปลงของสารเคมีจะได้รับจาก U .> œ $! Þ!!! $ U >a b gm / hr . เนื่องจากบ่อเริ่มปราศจากสารเคมี U! œ!a b, . Differential equations can be written as U !!!! U!!! œ! Combining both sides of the equation results in a . 68 !!!! U!!! œ! From !!!! U œ - / U! œ !!! !!!! !!!!!!!! œ)(! U)(! œ *#((,the amount of chemicals available after is, one year gramsa b, that is, .*Þ#(kg b-. with the rate now equal to the equation that the control becomes zero UÎ.> œ ! Þ!!! $U>a b Reset the time variable, now we set the default newgm/hr. œ *#(((Þ(b g b b. - U > œ *#(Þ(Þ(/Þ. The solution of different equations in one part is ! Þ!!! $>So one year the source is removed, the chemical content in the pond is after U)(! œ '(! Þb.grams www.ziie.ir 13 —————— ——. Leave it to a period after the source is removed, we get the equation. ! œ *#((Þ((/ Þ ! Þ!!! $ > Þ #Þ #ß!!! ! In fact, thea b + dye pool isleaves kg / minute gm per hour #!! † ; > > Î!!!! œ #!!!!! Of the dye in the pool belongs;! œ &!!! g b b, . . the solution of the controlled differential equation. The default value specified is > œ !!! / Þa b ! œ % the amount of dye in the pool after receiving four hours by setting !!! !!! that is; Since the size of the pool is, the g gallon concentration g/gallon dye is of that Þ!$(%a b. X. provides the time used to reduce the concentration of dye !!.s! At that time, the amount of dye in the pool was: Using g/gram grams answer in the section, we have of natural locarith of b, & !!!/œ#!! ! Both sides of the equation will result in the desired time X œ (Þ% hour per b/ ! Þ# œ#!! Î!!!. Please note that considering different equations < .> !!! œ ; > œ & !!! / Þa b < >Î!!! To set the appropriate flow rate set and (restore of >%œ;œ#!! #!! —————— ——CHAPTER 1. ___ We get the equation! œ &amp!!! / Þgm/gal < Î#&! Taking the natural logarithm of both sides of the equation results in the required flow rate < __The equation is , since the left hand side is a linear function oftwo linear C and its derivatives.C. Thefirst order one dependent variable is , hence the equation is .squared nonlinear 5. Œ C > œ / C œ ! Þ b b> ww > ww also, and .SoC > œ;9=2 > Ê C > œ =œ =382 > C > 9=2 > C œ! Þ # # #a b b ww ww #9 . —————— —— www.ziie.ir Instead of different equations, we have C > œ $> > ê C > œ $ #>a b# w > $ $> $> > œ$> #> $> > œ#b# 10. and clearly isC > œ;Î$ C > œ Î$ C > œ C > œ C > œ œ! œ! How to solve the problem. Similarly, , C > œ / >Î$ C > œ; œ / Î$ C > œ; œ /# #a b b a b> w > ww > C > œ / C > œ /www > wwww > # #a b, . So both / % / $ / $œ;Î $œ / % / $/ > œ>> > > > > > > > > & Function b is the solution of 11 different equations. Replace to Left > œ; Ê C > œ; Î# C > œ > Î% Î# Î# $Î# b b w w On the side of the equation, we have > Î% $> > œ > $ > Î# > œ ‰# ˆ ‰! Similarly, and instead of left C > œ;Ê C > œ > C > œ # > # # $ # #a b hand side bww of different equations. # > $ > > > œ % > # b $ # $ > > œ! . 12. and . # $ % b' # b% # # C > œ > 68 >Â>Â> #> # $ $ # similarly anda b2 w c >œ & > # $68 >#% % Instead of the left-hand side of the equation, we have > & > ' > 68 > > 68 > % > 68 > œ > & gt; 68 > #b% % $ $ 2 2 www.ziie.ir 16. —————— ——CHAPTER 1. ___> _ > 68 > % > 68 > œ! Þ 2 2 2 Therefore, both functions are solutions of different equations. 13. > œ -9 = > 68 -9 = > > = 38 > Ê C > œ =38 > 68 -9= > -9 = >a b c > œ -9= > 68 -9 = > > =38 > =/>a b. We have b b -9 = > 68 -9 = > > = 38 > =/- > -9 = 68 =9 = > > =38 > œ -9 = > 68 -9 = > > > > =/- > -9= > 68 -9 = > > =38 > œ =/- >a b. Then, and replace it into different equations > œ / C > œ;œ; /a b<> ww # <> results in since we received the algebraic equation< / # / œ! / Ä! < #œ!Þ# <> <> <> # The root of this equation< œ 3 # Þß# È 17 and . / & lt; / ' / œ! # < $ œ ! œ $ #b ß# 18 provides . $ < / #< / œ !$ <> # <> <> / Ä! < $< #< œ! Þ<> $ # We get the algebra equation by checking it according to that. < # œ! < œ! < œ # Þa ba b # $ 20 and . replace derivativec > œ; Ê C > œ; > C > œ; œ; < < >a b<> w < ww < # Into different equations we have. < < > %> > % > ; œ ! > Á!a b < < < Algebra equations the root of this equation and < &< % œ! Þ < œ % Þ# # 21. The order of the partial differential equation is , since the highest derivative, intwo fact each one of the derivatives, is of . The equation is , since the leftsecond order linear hand side is a linear function of the partial derivatives. 23. The partial differential equation is , since the highest derivative, and infourth order fact each of the derivatives, is of order . The equation is , since the left handfour linear side is a linear function of the partial derivatives. 24. The partial differential equation is , since the highest derivative of thesecond order function is of order . The equation is , due to the product on? Bß C ? † ?a b two nonlinear B the left hand side of the equation. 25. and? Bß C œ -9= B -9=2 C Ê œ -9= B -9=2 C œ -9= B -9=2 C Þa b ' ? ' ? 'B 'C # # # It is evident that Likewise, given , the second' ? ' ? 'B 'C # ## # # œ ! Þ ? Bß C œ 68 B C#a b a b derivatives are www.ziie.ir 17. —————— ——CHAPTER 1. —————— page 17 ' ? # %B 'B B C œ B C' ? œ B C B C œ % B % B B C œ ## ## 2 2 a b a b # bb # bb C # is also a solution of different solution Let the second derivatives are? ' œ =38 B=38 +>a b=38b =38 +> #-it-is-easy to see that we have . #B '> # b #b #œ =38 B +>' ? Bß >#a b 28. Bß > /a b È1 B Î% > # ! ? œ Î> / Î> B / # ? B / % > > ? œ > / #> BB B Î% > # B Î% > B Î% > # % # > # # B Î% > # Èè È 1 1 ! 1 1 ! # # # # # # # # ! ! ! ! œ BB > # > B / % > > È %1 ! Bß >a b www.ziie.ir 18. —————— —— CHAPTER 1. ___Þ the path of the particle is circular, so it is within the polar coordinate problem. Newton's second law states that in the equation direction of F aœ 7 Þ, the tangent movement may be displayed, which is that! J œ 7 +)) linear acceleration path is in a positive direction + œ P. Î.> Þ Ð +))) from the increase # due to the only force acting in the touch direction is the component) Ñ of the equation weight of movement is 71 =38 œ 7P Þ . .> #ÐNote that the equation of radial movement in the direction of the tension is included in the tension stem. The new word arrangement will result in different equations 1.> P =38 œ! ___Þ_Þ.Þ Þ. —————— —— www.ziie.ir Þ Þ.Þ-based field direction all solutions seem to converge with enhanced functions only b-b-Þ > œ / C > œ >œ; œ$ / -/ ÞThe Þ integration factor is and $$> > It follows that all solutions converge with C> œ;œ;Î$ Î*2a b+ Þ b b, . œ / C > œ > / Î$ - / ÞThe integration factor is and therefore is #> $ #> #> Obviously all solutions increase in the exponential rate 3a b+ www.ziie.ir 20. —————— ——CHAPTER 2. All solutions seem to converge with functions! b-Þ > œ / C > œ;/ Î# - / ÞThe integration factor is and hence it is #> # > > All solutions converge with a specific solution C> œ !a b 4 . .a b+a b, . b- b- Þ > œ >the aggregate factor is, and hence The general solution is C > œ =38 #> $-9= $-> $-%> #> #> b b, which is an arbitrary constant, as all large solutions converge with functions > C > œ $=38 #> Þb b 5 .b+ www.ziie.ir 21 —————— ——CHAPTER 2 ____. Eventually, all the hills will become positive, so all solutions will increase without scope b'-Þ > œ /B: #.> œ / ÞThe aggregate factor is a different equation #>can be written as, that is, combining both / C #/ C œ $/ C œ $/ Þ #> w #> > > >B side of the equation results in a generic solution according to C > œ $ / - / Þa b > #> All solutions are exponentially increased 6a b+b, Þ C > œ! œ >The integration factor is and hence the general solution is # C > œ -9= > =38 #> -> b b # which is an arbitrary constant as all solutions converge with function > C > œ www.ziie.ir! —————— ——CHAPTER 2. ___> Þ_ ÞAll seems to converge with functions! b-b-Þ > œ /B: > C > œ> / - / ÞThe aggregate factor is and hence it is # > > œ C > œ >+8 > G Î ÞSince The general solution is B a b > > # # it is based on which all solutions converge with function c > œ!! b 9a b+ Þ www.ziie.ir 23 —————— ——. Eventually, all hills will become positive, so all solutions will increase without scope b b b'‰- Þ > œ /B: .> œ / The aggregate factor is that the differential equation can # >Î# is written as, that is, the join / C / CÎ# œ $> / Î# œ $> / Î&Î>Î# w >Î# >Î# >Î#Â>Â >Î# ‰Â000 / C## >Î#w of both sides of the equation resulted in general solutions AllC > œ $> ' - / Þa bÎ# >œ;œ $> ' - / Þa bÎ# >œ C > œ $> ' Þ!a b 10 .a b+b, C ! For almost all solutions there are negative hills, and hence the solution ! B-Þ >First is divided on both sides of the equation. The combination factor is that the differential equation can be b‰'> œ /B: .> œ Î> >Write as, that is, the integration leads to generalC Î> CÎ> œ > / CÎ> œ > / Þw # > >Solution b for solutions C> œ > / - > Þ -Á !a b > diverge, Implied by the field direction. For specific solution cases is - œ! œ >/a b > which apparently approaches .zero > p _11 .a b+b, Þ the solution seems to vibrate. www.ziie.ir 24. —————— ——CHAPTER 2. _______ Page 23 b- Þ > œ / C > œ =38 #> # -9 = #> - / ÞThe integration factor is and hence > > Apparently all solutions converge with a specific solution C > œ = 38 #> b- b b -9= #>a b . Î #Þ>Î# >Î# >Î# >Î# >Î#w ‰ aspects of the equation resulted in a general solution ItC > œ $> #> #% - / Þa b # >Î# follows that all solutions converge with a specific solution C > œ œ $> #> #%!a b #14. results ‰ / C œ > Þ2> w in a general solution that calls the specified condition weC > œ; / Î# - / Þa b # #> #> so and the default solution for / 1 <6> - / œ! œ Î## # The problem is C > œ; / Î# Þa b# #> 16 The aggregate factor is multiplied on both sides with .a b ‰'> œ /B: .> œ > ># > Equations can be written as combining both sides of the equation b> C œ -9= > Þ > # w results in general solutions, substitutions, and settings C > œ = 38 > Î> - > Þ > œa b # # 1 value equals zero, so the only solution is - œ! œ =38 > Î> Þa b # 17 the aggregate factor is, and different equations can be written as .a> œ /#>included, we received an initial ‰ initial call ‰ b / C œ Þ / C > œ > - Þ 2 2> >Conditions in solution C > œ> # / Þa b #> 19 After writing the equation in orm0 standard, we find that the aggregate factor is .a b b ‰'> œ /B: .> œ >% > % Multiplication on both sides with Equations can be written as ‰ b> B> B> C œ > / Þ Þ > / Þ > C > œ > / - Þ% > % >Combine the results on both sides in Letting > œ and set the equal to zero to a specific solution- Œ! Þ The value problem is C > œ > > / Þa b $ ‰ % > 21 .b + www.ziie.ir 25 —————— ——CHAPTER 2. __ From the direction field for + œ + ! The solution is reduced without binding b Þ. Î&#Î# > The solution is sinus> œ)=38 > %-9= > > - /a b >Î# is . - œ! The default value of this sinus lloyd solution is + œ! b).38! %-9=œ %Î&Þ b-Þ 22a b+ It seems to be the beginning without boundaries. Depending on the default, the crisis value appears to be + + œ Þ! b, Þ integration factor is , and the general solution of differences. œ / Î#> สมการกำลังเรียกเงื่อนไขเริ่มต้น, > œ $/ - / Þ C! œ +a b>Î$ >Î# อาจแสดงเป็นความแตกต่างตามมาว่าC > œ $ / + $ / Þa b>Î $ >Î# C! œ + $ Î# œ + Î# Þw b b ค่าวิกฤติเห็นได้ชัด + œ Þ! www.ziie.ir 26. —————— ——CHAPTER 2. ___ _ สำหรับการแก้ปัญหาคือ! C > œ $ / # / >a b>Î $ >Î# ซึ่งมีขนาดใหญ่ถูกครอบงำโดยคำที่มี / Þ>Î# คือ . C > œ)=38 > %-9= > Î& - /a b >Î# 23a b+ Þ เป็นโซลูชั่นที่เพิ่มขึ้นโดยไม่ต้องผูกพันถ้าและการแก้ปัญหาลดลง> p! C œ + Þ%a b without bound if C œ + Þ% Þa b Þa %‰', > œ /B: .> œ > / Þ The aggregate factor is the general solution of > >The difference is to retrieve the specified value , C > œ; / - / Î> C œ œ +a b> > > That is, so the solution can also be displayed as -œ + / - œ + / C > œ; / + / / 40 a bÎ> > . For a small value of the second word is dominant.> The key value setting of the parameter is + / œ! Î/ Þ! a b- + Î/ + Î/ for The solution will increase without boundaries for The solution is reduced without being bound. When the solution is + œ Î / C > œ; œ;œ; / ! > p !b > which approached as 24.b+ is, the solution increases without binding if, and the solution drops >p at C œ + Þ%a b without scope if C œ + Þ% Þa b www.ziie.ir 27. ——Lesson 2 ___C œ + C > œ + -9 = > Î> Considering the default condition, the solution is Î Î%1 1# Þ, because the solution increases without bound if and solutionslim >Ä # ! -9= > œ + %1 decreased without binding if so, the value+ %Î# 1 + œœ! Þ%&#)%(ÞÞÞ! 1# .b b a b-Þ + œ %Î C > œ -9 = > Î> C > œ Œ Î#For The solution is and therefore 1 # >Ä lim ‰! œ /B: .> œ / Þ # >Î# C > œ %-9 = >)=38 > Î< - / Þa b d da b Î#> The specific solution is the difference, it is according to C > œ; œ;œ=>)=38 > * / Î&b >000 C >)-9 = > %Þ and / Î & C > œ > %-9 = >)=38 & #Þ#& Î> ww > a b a b ' b ' Î# Î# setting The first solution is, which provides the location of > œ! > Þ$'%$w The first stationary point b is .a b$þ$þ)#!!) 26 ‰. œ /# $ >Î# Î$ can be written as a generic solution isa b / c œ / > / Î# Þ C > Î$ Î$> >w Ð# '>Î) Ð# '>Î) #Î)- / C > œ C / # Î$. To set the default conditions, we have .b b, since the smooth solution at the desired intersection will be a touch point. Using solution setup derivatives C > œ $Î% #C #Î% / Î$ Þ C > œ !w > w b b! # Î$ is substituted in the solution, respectively, 68 > 68 #)C Î* Þ! # c da b. 68 $ 68 #)Ca b! * * #%) Zero, we get the desired default value c œ # * / Î) œ Þ%$Þ! %Î$ b 27 the aggregate factor is, and the differential equation can be written as .a.a> œ />Î4 a b/ C œ $ / # / -9= #> Þ>WÎ Î4 4 4 4 General solution is C > #)-9=#> '%=38 #>Î'> - / Þa b 4 œ!a b C > œ #)-9= #> '%=38 #> ()) / Þa b ' 4 is a numbered word is going to disintegrate and the solution will vibrate about a&p_ average and amplitudeof with its#) Î '&ÞÈ www.ziie.ir 28 —————— ——CHAPTER 2. The aggregate factor is, and the differential equations can be. B> œ /$ Î#> is a generic solution isa b / c œ $ > / # / Þ C > œ #> %Î$ % / $ 100 $ Î$ Î#> > >w - / Þ C > œ #> %Î$ % / C Î$ / Þ$ Î$ > Define the default condition b b available to be a solution word> 'Î$ the corresponding solution is reduced without C> œ #> %Î$ % /a b >bound. Note about issue 31-34: Give and consider the function in > C > œ C > 1 > C > p _a b bgiven is . Leave a>p _C > œ C > 1 > +w w constant b b it follows c > +C > œ C > +C > 1 > +1 > Þw w b Note that the function will be satisfied if . C > œ - / Þ a b a bw +> C > œ - / 1 > C +C œ 1 > > Þa b+> w, which is the solution to ease the equation. Select .+ œ 31 here, and we consider the linear equation, combining 1 > œ $ C C œ $Þa b factor is, and different equations can be written as B> œ / / C œ $ / Þ> >General solution is C > œ $ -/ Þa b > 33 Consider the linear equation, combining 1 > œ$ > Þ C C œ $ > Þa b w factor is, and different equations can be written as .a b> œ / / C œ # > / Þ> >w General solution is C > œ $ > - / Þa b >34 Consider linear equations >include 1 > % > Þ C C œ% #> > Þa b # factor is, and the equation can be written as b> b> > œ / C œ % #> > / Þ> > #>w General solution is C >œ % > - / Þa b # > www.ziie.ir 29 —————— ——CHAPTER 2. For The differential equation may be written by asB Á C œ .B Þc da bb Î B# $ combined with respect to the appropriate variables, we get the relationship C# œ 68 -Þ C B œ 68 -Þ #Þ #$$k k BÎ B $That b 3. The difference may be written as well as two cells Cœ =38 b. B side Þ# of the equation about the appropriate variables, we have been associated C œ -9 = B -Þ G -9 = B œ G that is, arbitrarily b the solution for variables that are clearly reliant B œ œ G Write a differential equation as or -9 = #C C œ -9 = B =/- #C .C œ -9 = BÞ # # include both sides of the equation. About the appropriate variables, we get a correlation > +8 #C œ = 38 B -9 = B B -Þ 7. Different equations may be written as Integratinga b / .C œ B / .B ÞC both sides of the equation about the appropriate variables, we get c relationships # / œ B # / - Þ # C # B 8 write different equations as a combination on both sides of the aa b C# .C œ .B 10 The differential equations can be separated by $C Integrationa b a b+ C œ #B .B Þ# provide a replacement return, and we found that C œ B B Þœ! Cœ Î' - œ ' Þ' # So the specific solution is .ISC œ B B ' # clear form C B œ Î Þa b b b 'b, b- B B ' œ B # B $ Please note that therefore the solution becomes #singular b œ # B œ $ Þand 10a b b È + Þ C B œ #B #B % Þ # www.ziie.ir 30 —————— ——CHAPTER 2. ___11 Rewrite different equations as combining both sides b + Þ B / .B œ C .C ÞB of the equation resulted in the run of the default conditions weB / œ C Î# -ÞB. B # Get Hence - œ Î# Þ C œ #/ #B / Þ# B of the solution is the format C B œ Þa b è#/ #B / C! œ ÞB B plus sign is selected from b b, Þ b- Þ B œ Þ (Bœ! Þ('ÞThe under radicals becomes close andnegative 11 write different equations as the combination on both sides of thea b + Þ;.< .< œ. Þ #) the equation results in a relationship defining the conditions we < œ 68 .500). The format of the solution is < œ #Î # 68 Þa b)) www.ziie.ir 31 —————— ——CHAPTER 2. Þ_ ÞClearly The solution makes sense only when Furthermore the solution becomes a) singular when that is 68 œ Î# œ / Þ)) È 13a b Þ C B œ œ # 68 B % Þ# b, Write a different equation as combining two b+ C œ B B .B $ Þ Î## side of the equation about the appropriate variables, we get the relationship C Î#œ B -Þ-œ $Þ#1 #E# set the default conditions. We have been, therefore, a specific solution can be displayed as TheC œ $ # B Þ # È # clear form, plus the solution is TheC B œ Î $ # B Þa b É È # selected to meet the default condition. 32. —————— ——CHAPTER 2. ___Þ b- Þ That is, at 15a b b è + Þ B œ œ â€œ B 15a b b è + Þ B œ œ 16 .a+ written different equations are both combinations%C .C œ B B .B Þ$ # b side of the equation resulted in the initial condition determination, we received Î% %-Þ%bB # #-œ! %C œ! ÞHence Solution may be displayed as forma bB # % clear of the solution is selected according to C B œ Þ C! œ Þa b BÈa b È B 17 Î —————— —— www.ziie.ir 17a b È Þ 10 B Þ 1 B Þ 10 B Þ Þ 10 B Þ 1 B Þ Þ 1 17a b È Þ 1. œ & Î# B / $1%Þ$B, Þ b-b Þ%& Þ . Write differential equations as combining the two b+ $ %C C œ / / .B Þ B side B of equation about the appropriate variables, we have been associated $C #C œ / / -Þ C! œ # B B b b is destroying the default condition we get - œ (Þ $C #C œ / / (ÞThus solution can be displayed like now by #B B Square Made on the left hand side #C $Î% œa b # / / '&Î)bb B . So the clear pattern of the solution is C B œ $Î% '&Î' -9= 2 B Þa b È www.ziie.ir 34 —————— ——CHAPTER 2. __ Þ_ B #Þ Þ. Note, as long as the solution is correct over time . #Þ b #Þ 19a b + Þ B œ Þ œ Î $ =38 $-9 = B Þa b b1 $ #b, Þ 20a b + Þ write Different equations are Integratc .C œ×<-=38 B&B B .B Þ# #Èทั้งสองด้านของสมการผลลัพธ์ใน Defining Conditions Î$ œ +<-=38 B Î# - Þ$b #C ! œ! 1000-œ! Þa b We get a model of solution isexplicit C b œ Þa b b$#+< - = 38 B Î $www.ziie.ir 35 —————— ——CHAPTER 2. Obviously , the solution is set for 22 different equations can be written as combining the two b$C % Cœ $B .B Þ # # side by side, we get the default conditions. Solution %C œ B - Þ$ is referring back to different equations, we found that asC %C œ B Þ C p _$w c p #Î $ Þ B œ Þ#(' Þ Therefore, the solution is correct for Þ#(' B Þ&*) Þ 24 writes different equations as combining both sides b b$ #C .C œ # .B ÞB, we get the initial terms specified solution $C C œ #B / - Þ # B can be written as follows: it is according to $C C œ #B / Þ# B square finish c b 1 $Î# #B / $Î% Þ #B / $Î% !b È B The solution is determined if that is. B œ 68 # Þa bapproximately w has been verified that . !ww ww a b the solution achieves the highest global at B œ 68 # Þ 26 different equations can be written as Integratinga b C# .C œ # B .B 100% Þa b on both sides of the equation, we have been assigned +<->+8C #B œ #B B - Þ# the default condition. Þ B œ Þ×+8 Þ# b#B B# notice that the solution is defined for as long as it is easy to Î# #B B Î# Þ1 1# see that next for and hence. #B B Þ #B B Î# B œ #Þ #Þ' ! Þ' Þ www.ziie.ir 36. —————— ——CHAPTER 2. ___The solution is since on all periods B œ Þ C B !ww b of the solution definition achieved the global minimum at B œ Þ 28 . > .> Þ On both sides of the equation, we have been removing 68 C 68 C % %œ %> %68 > - Þk k of both parties, it follows that it follows after k bC % C % œ / Î Î > That is, > p _ CÎ C % œ %Î C % p _ C > p % Þk k k b, Þ C! œ #G œ Setting, we get that according to the default conditions. The solution may be listed as note that for all CÎ C % œ / Î > Þ CÎ C % !b%b%> % > ! This means that the solution is that we find that the monotone plus of CW increases that the root of the equation is near / Î > œ $** > œ #Þ)% Þ%> b%b% b- Þ C > œ % Note is a balanced solution. Convergence at Reference C! œ %a b back to section , We have , for Settinga b b d b b + CÎ C % œ œ CÎ C % / Î Î % Þ! %%> > œ# CÎ c c %œ$Î/C # Î C # % Þ We have now since function! œ CÎ C % C % C %a b for and we need to solve the equation C Î C œ œ CÎ C % Þ! # % b $**Î/ %! Related solutions are andC œ $Þ'# C œ %Þ%!%#—————— —— www.ziie.ir Þ! Notice that the equation is different ‰+ B. $C Î#BC œ Þ# # B # B #B C homogeneous b, C œ B @ B @ œ B $B @Î#B@. The interchangeable equation is general@ œ general@ @ @ Î#B@ Þw # an isolated solution b in terms of the original reference variable. Solution is@ œ -B Þ# B C Þ Þ # $a b- Þ 33a b-Þ www.ziie.ir 38 —————— —— CHAPTER 2 . $C Îð#B CÑ œ # Þ C B B Different equations are .homogeneous a b, C œ B @ B œ œ @Î # @ replacement will result. The converted equation is this equation used by general@ œ @ &&@ % ÎÐ# @ÑB Þw # b isolated solution in terms of original dependency variables. Resolution b k k@% @ œ GÎB Þ# $ is b k%B BC œ GÞ# a b- Þ 35 .a b- 36 divided by homogeneous equations instead of wea b + Þ B B œ # Þ @ .@œ B .B ÞWrite equation is a combination on both sides of the equation. # We get a general solution in terms of the original Î @ œ 68 B - Þa b k. The variable reliant on the solution is C œ B G 68 B B Þk dk k www.ziie.ir 39 —————— ——CHAPTER 2. ˆ ‰Þ+ C œ w # B # B # B C is homogeneous The substitution will result in C œ B @ B @ œ & @Î#@w # split variable b we have #@ &b#.@ .@ œ .B Þ b, Þ switching both sides of the equation return, changing & 68 œ 68 B -k &@# k k, that is in terms of the original. Common variables & œ GÎ B Þ# & k k solution is & C œ B GÎ B Þ# # k b-Þ 38 different equations can be displayed as . ˆ ‰Þ+ C œ w $ # B # B C C is homogeneous. The substitution effect in the C œ B @ B @ œ @ Î#@w #a b is #@ @ B# .@ œ .B Þ b k, Þ 68 œ 68 B - combining both sides of the equation returns changed k k@ # that is, in terms of the original dependency variables, general solution@ œ G B Þ #k is C œ G B #k www.ziie.ir 40 —————— ——CHAPTER 2 www.ziie.ir_. —————— ——CHAPTER 2. ___ provides a salt content in a bucket of salt into a bucket of water at a rate of b + U # = 38 > œ =38 > Þ #UÎ ‰!! Þ salt default content is ode control isU œ & ! 9D Þ! Linear, with the equation-writing combination factor The.a b‰ ‰> œ / Þ / U œ / Þ>Î&! >Î&! >Î&!w # % =38 > โซลูชันเฉพาะคือ U > œ #& #Þ&=38 > '#&-9= > '$'&! / Î#&! 9D Þa b >Î&! b, Þ b- Þ The equation that controls the value of the investment is the value of a b+ WÎ.> œ < W investment, at any time, to be obtained by setting , preferred W > œ W / Þ W X œ #Wa b! Time <> is X œ

68 # Î< Þa b, Þ < œ (œ Þ!(X-Þ* C< = % Þ in case, %b b - Þ + < œ 68 # X X œ) means , section, settings, required , approximate interest rate < Þœ'Þ'Þ'8% . Depends on the solution in with the value of the investment b + W œ !Eq with! Contributions will be received from after a year A hasW > œ #&ß !!! / Þa b<> Ten W œ #&ß
!!! Þ##' œ $!ß%$a! œ $!ß'%! / W œ #&ß !!! / ÞE F!) > Þ!) > b After the year, balance is andthirty $ $W œ $(ß(ß W œ œ #&!ß &!ß & (*Þe F b, Þ&lt Þ&Wœ!ß!! For rates, the balance after year is andunspecified $thirty ———— ——!< W œ œ&ß !!! / ÞF b$!<
www.ziie.ir 42. ขของÞทั้งสองสมดุลสามารถเท่ากันของไม่เคย11ของ ให้เป็นมูลค่าของการจำนอง หนี้สะสมในอัตรา , ina b + W <W which= is= the= interest= rate.= monthly= payments= of= are= equivalent=></W> < œ= þ!*=)!!annual= $= $= per= year= the= differential= equation= governing= the= value= of= the= mortgage= is*ß= '!!= þ= .wî.=> œ
Þ!* W *ß '!! Þ WGiven เป็นจำนวนเงินเดิมที่ยืมมาหนี้คือ! W > œ W / !' ß "(/ Þ W $! œ !a b a b! Þ!*> Þ!*> การตั้งค่าที่ตามมาว่า W œ **ß &!!! $. b, Þ $! #))ß !!! การชำระเงินในช่วงหลายปีที่ผ่านมาจะกลายเป็น ดอกเบี้ยที่จ่ายในการซื้อนี้ $ คือ .$))ß & !! 13 . ยอดคงเหลือในอัตราและในอัตราคงที่ของa b+ < w= 5increases= $/yr=
decreases= $= per= year.= hence= the= balance= is= modeled= by= the= differential= equation= ..wî.=> <W = 5= the = balance = at= any= time= is = given = by=w=>œ W / / Þa b! <> <> 5 < a= b,= w=> ðw Ñ/ Þ. The solution may be shown as if! 5 5 <> <> <> The withdrawal rate is that the balance remains at a
fixed level 5 < w= w= þ!= != != a= b '= "-= 5= 5= w= x= œ= != x= œ= 68= þ.= assuming= that= ,= for!= != != = 5=> < 55!= a= b.=> < œ= þ!)= 5= œ= #5= x= œ=)þ".= if= and= ,= then!= != years= .= a= b= a= b= a= b/= w=> œ! / , / œ Þ > œ X. การตั้งค่าและการแก้ปัญหาในส่วนตอนนี้ <> <> การตั้งค่า 5 5 <W! results= in= 5=
œ=></W!> <W î= = þ!= x=></W> <> < a= b= a= b= a= b0= þ= 5= œ= #ß= !!!=> < œ= þ!)= x= œ= #!in= part= ,= let= ,= ,= and= .= the= required= investment= becomes= .w= œ= *ß= (&!= $= 14= let= the= general= solution= is= based= on= thea= b= a= b+= þ= u= œ= => < u= þ= u=> œ U / Þw <> ! คำจำกัด
ความของพิจารณาสมการมันเป็นไปตามที่ชื่อ- ชีวิต U Î # œ U / Þ! ! & ($! < www.ziie.ir= 43.= ——= ——chapter= 2.= ——= page= 42= = &($!=> < œ= 68ðî#ñ=> < œ= þ#!*(= ,= !,= that= is,=
%= per= year.= a= b= a= b,= u=> œ U / Þดังนั้นปริมาณคาร์บอน 14 จะได้รับโดย ! Þ #!*(! >% b- Þ U X î & Î& œ / ÞGiven ว่าเรามีสมการการแก้ปัญหาสำหรับ! Þ#!*(! X% อายุที่เห็นได้ชัดของซากศพคือประมาณปีเวลา Xœ $ß $!%Þ'& 15. ปล่อยให้เป็นประชากรของยุงได้ตลอดเวลา อัตราของ> >การเพิ่มขึ้นของประชากรยุงคือประชากร
โดย ดังนั้น<TÞ #!ß= !!!decreases= per= day= equation= that= models= the= population= is= given= by= .= note= that= the.tî.=>œ <T = #!ß= !!!= variable= represents= .= the= solution= is= in= the=>T > œ T / / Þdays b! <> <> #!ß!!! < absence= of= predators,= the= governing= equation= is= ,= with= solution.t= î.=>œ <T =
t=>T / Þ T (œ #T #T œ T / Þ ! ! ! ! b <> b (< based= on= the= data,= set= ,= that= is,= the= growth= rate= is= determined= as= therefore= the=> < œ= #= î(= œ= þ!**!#= þa= b= per= day= including= the= by= birds,= ispredation= t=> œ # '</T> </T> </TÞ> </W> </W> / #! ß **(/ œa b & Þ!**> Þ!**>
œ #! ß **(Þ$ *((Þ$ / ÞÞ!**> 16 . Isa b b c d+ C > œ /B: #Î! >Î! #-9=Ð>ÑÎ! Þ¸ #Þ*'$# Þdoubling-time 7 b b, b, Þ . CÎ.> œ CÎ! C > œ C! / ÞTheที่แตกต่างคือ ด้วยสารละลาย The>Î! เพิ่มเวลาเป็นสองเท่าโดย 7 œ !68 #¸ 'Þ*$& Þa b b- . CÎ.> œ! Þ& =38Ð# >Ñ CÎ & Þ พิจารณาสมการที่แตกต่างกันสมการเป็น1แยกได้, กับการ
รวมทั้งสองฝ่าย, เกี่ยวกับ C & C œ! Þ =38Ð# >Ñ .> Þˆ ‰1 The appropriate variable, we get the initial call 68 C. œ > -9=Ð# >Ñ Î! - Þa b1 1 1 solution condition is isC > œ / B: > -9 = Ð # >Ñ Î! Þa b c da b1 1 1 double time 7 Þ 'Þ$)!% Þ,value method found in .double time b. 17 . .b b "> œ /B: < > .> Þ C œ 5
> Þ Write equations as a combination of two www.ziie.ir 44 —— ——CHAPTER 2. __ In this issue, C œ 5 C ! œ >The population will become if for some means |>part b + Êa b (c da b! > Î> - Disproportionately on the left hand up from zero to zero is a limited value. So
extinction can occur Þ!) *$ Only if & C & Þ!) *$C ! การทำซ้ำอาร์กิวเมนต์ในส่วน จะเป็นไปตามที่ ‡ (c da b ! > Î& - ‡ /B: -9= Î& . œ / C Þ 5 7 7 7 ดังนั้นการสูญพันธุ์สามารถเกิดขึ้นได้นั่นคือถ้า / C Î5 & Þ!) *$ C %Þ'(5 ÞÎ& - b.C 5. เห็นได้ชัดว่าเป็นฟังก์ชั่นของพารามิเตอร์ .- เชิงเส้น 19 . ปล่อยให้เป็นคาร์บอนมอนอกไซด์
ในห้อง อัตราของ ofa b b + U <เพิ่ม CO CO ออกจาก roomis ปริมาณในอัตราของ ba bÞ!% ! Þ œ! Þ!! % 0> Î738 Þ $ b! Þ U > Î#!! œ U > Î#!!! 0> Î738 Þ ดังนั้นอัตราการเปลี่ยนแปลงทั้งหมดจะได้รับจาก $ สมการที่แตกต่างสมการนี้เป็นและ UÎ.> œ! Þ!! % U > Î#!!! Þaเชิงเส้น b แยกออกได้ด้วยโซลูชันโปรดทราบว่าU > œ %) %) /B: >Î#!!! U œ
!a b 0> Þ 0> Þ $! ดังนั้นเมื่อใดก็ได้ที่ได้รับจาก .concentration %B > œ U > Î#!! œ U > Î#a b b a b b, B, B > œ % %/B: >Î#!!!. ของ ในห้องคือ A levelconcentration CO %Þของ สอดคล้องกับ การตั้งค่าการแก้ปัญหาของสมการ! Þ!!! # ! Þ! # B œ! Þ! #% b7 % %/B: >Î#!!! www.ziie.ir __seea b +Þ-Þ 45
—— —— __seea b œ 5 TÎ < = -= = 5= => < þ> <> ÎZ at - &p_ îœ 5 T< þa= b= a= b=þ=þ=œ= œ - / X œ 68Ð #ÑZ Î < x= œ= 68ð!ñz=> <Þ. the = are = and!=>=</Þ.> > ลดเวลา b b- Þ X 68 ! ' &Þ#Î#ß #!! œ %$! Þ)&The, ใน, arereductionครั้ง
ปีwxœ68 & Î%ß *!! œ (Þ% à X œ 68 ! (&Î%'! œ 'Þ!&Q Ia ba b X œ 68 ! #!* Î'ß !!! œ (Þ'$ ÞS ba b 21a b- Þ 22 . สมการที่แตกต่างสำหรับการเคลื่อนไหวคือ ให้ thea b + 7 .@Î.> œ @Î$! 71 Þเงื่อนไขเริ่มต้นการแก้ปัญหาคือ .@ ! œ #! @ > œ %%Þ '%Þ /B: >Î%Þ&b a bm/s Setting ลูกบอลจะถึงความสูงสูงสุด
ที่ Integrating@ > œ! > Þ')$a b วินาที @ > B > œ $)Þ%& %%Þ > #))Þ%& B: >Î%Þ& Þa b b, ตำแหน่งที่ได้รับโดยดังนั้นความสูงสูงสุด mB > œ %&Þ()a b b, b, Þ B > œ! > œ & Þ#) settings , ball hit the ground at .# seconds b-Þ 23 different equations for movement is , b + Þ 7 .@Î.> œ @
71upward . Þseparable 7 @ 71 # www.ziie.ir 46 —— ——CHAPTER 2. __Setting@ Þ%%Þ$$>+8 Þ%#& Þ### > Þa b @ &gtœ! The combination of the anchored position will be obtained by, so B> œ *)Þ(&68 -9= ! Þ### > ! Þ%& %)Þa b b 71 Þ&a b b, Þ 7
.@Î.>œ @ 71 ÞThe Different equations for movement are down . ตั้งค่าที่7 71 @ # .@ œ .> Þ > œ! ของวิธี เงื่อนไขเริ่มต้นใหม่จะกลายเป็น บูรณาการทั้งสอง@ ที่ œ!เป็นด้าน b และเรียกเงื่อนไขเริ่มต้นเราได้รับ 68 %%Þ$ @ Î %%Þ$ @ œ >Î#Þ#&c da b b b Þ การแก้ปัญหาสำหรับความเร็ว การรวม the@ > œ %%Þ$ $ / Î /
Þ @ >a b> >Î#Þ#& Î#Þ#& position จะได้รับโดยเพื่อประมาณ B > œ **Þ#* 68 / Î /)'Þ# Þa b b' > > #Î#Þ#& Î#Þ#ระยะเวลา secof การเคลื่อนไหวลง, ชุด, ส่งผลให้ . ดังนั้น> œ! > œ $Þ#('a b# # เวลารวม secthat ลูกยังคงอยู่ในอากาศคือ .> > œ & Þ*#1 # b- Þ 24 วัดทิศทางบวกของการเคลื่อนไหว . ขึ้นอยู่กับ
กฎหมาย nd Þ #downward newton'sa b+ สมการของการเคลื่อนไหวจะได้รับโดย 7 œ Þ .@ .> ! Þ(& @ 71! # 71 > !œ , note that gravity acts in direction and drag is solution@ @Î initial.@Î . / @ ! œ ('Þa b>Î(Þ&Þ) fps b b, B> œ! B >Î(Þ&Φ)B ——
—— www.ziie.ir! For the rest of the movement, the default problem is with velocity.@Î.> the default indicated œ $#@Î$# @ ! œ ('Þ@>œ&Þ(Þ&p_a b The solution is obtained by IS, fps. $# >Î; @ > p @ œ & Þ B! (%Þ&a b b b that combines speed with reduced distance after the parachute is opened by finding B>
œ& (&Þ) / &! Þ $Þa b $ #>Î The duration of the second part of the movement approximates the root of the equation above & X (&Þ) / &! Þ$ œ&!!! Þ X œ œ #&'Þ$# XÎ&x The default problem is 7.@Î.> œ 5 @ 71 .@Î.> œ 5@Î7 1 with the solution is Setting@! œ @ > œ 71Î5
@ 71Î5 / Þa b b! 5>Î7 @ > œ! > œ 7Î5 68 71 5 @ Î71 Þa b b b da b7 7 Max height is time! The inclusion of body position speed is B > œ 71 >Î5 1 Ð / ÑÞ 7 @ 5 5 b • Š‹ # 5>Î7! So the maximum height b œ B > œ 1 68 Þ 7 @ 7 71 5 @ 5 5 71 7 7! ! b Š ‹ • #b, Þ ¥ 68 œ áRecall for , $#$26.a b, œ 5
@ 71 / œ 1> Þlim lim 5Ä! 5Ä! 1000 71 5 @ 71 / 5 7 > 5>Î7a b! 5>Î7 ! b ˆ ‰- Þ @ / œ ! 5>Î7 ! 28 . In terms of displacement, the .B difference is isa b + 7@ .@Î.B œ 5 —— —— www.ziie.ir @ 71 Þ What this comes from: . Page 47 B @ œ 68 Þ 7@ 7 7
71 71 5 @ 5 5 5 71 a b º # inverse since both and monotone is increasing in terms of B @ Parameter b @ œ Þ#& $68 ! The desired value is .meters b-b-Þ + @ œ.m! The equation of movement isa b + Þ B defined by the global gravity constant 7 œ K K.@ symbols Q7 .> VBa b# and and of the world respectively according to the q v
chain rule mass radius 7@ œ K .@ Q7 B V Ba b# . œ KQ V B Þa b# and trigger the default conditions, solution is@! œ #1V @ œ #KQ V B a b b B # #1V #KQÎV Þ 1 œ KQÎVFrom elementary physics it is based on that #1 #1. This equation is also isolated. The default condition is È B B œ #1 V.> Þ B! 1000 Þ B > œ
#1 V > V V Þa b b '‰ choose both sides, we get $#$Î ##Î$ distance setting and resolution for the duration of ab x V œ #%!ß !!! Xa b flight will be X 32 hours 32 equations both linear and split lines are linear and split. Default condition space b b + Þ @ ! œ ? Either way is andA! œ 1Î< a b b<> ? = 38 1Î< / Þa b <>
www.ziie.ir 49. —— ——CHAPTER 2. __Þ +Integration solution in the section and the default condition call, the coordinates are andB > œ -9 = /a b? < <> C > œ 1>Î< 1 ?< =38 2< Î< =38 1Î< / Þ? < b ˆ ‰ Š ‹# <> b- Þ b. Þ X $&! Leave it
time to take the ball horizontally. Then from the top ft /œ? -9= (!Î?9=ÞXÎ&b At the same time, the height of the ball is given by C X œ ' ! #'(#&?=38 Ð)!! &? =38 EÑ ? สามารถถูกเซ็ตอัพได้ -9= (! Î? Î? Î? -9= ! Þ? -9= (!? -9 = • c da b 33 สมการการแก้ปัญหา,. คำตอบคือ b b c da b + Þ 3 C B œ 5 C ÎCw # Î#
บวกเลือกเนื่องจากเป็นหน้าที่ของ . C Bincreasing b, C œ 5 =38 > . Cœ #5 =38 > -9= > .> Þ. ให้ จากนั้นแทนที่ลงในสมการใน # # ส่วนหนึ่งเราพบว่า thata b + #5 = 38 > -9 = > .> -9 = > . B =38 > œ Þ # #5 =38 > .> œ . B Þ# # b- Þ œ #> 5 =38 . œ . B ÞLettingเราได้รับเพิ่มเติมรวมทั้งสองด้านของ))# ## Equations and noting
consistency We get solution œ > œ !) generator B 5 =38 Î# , C œ 5 -9 = Î# 19 Þa b d b) # # and from part b. CÎb œ - 9= 3 <9> =38 Þ b œ Cœ # Please note the settings of the solution) The equation is to replace one of thea b a b -9 = Î = 38 œ # Þ%Þ!))) expression to 5 rup #Þ*$Þ www.ziie.ir 50
—— ——CHAPTER 2. Considering the root of the coefficient of the ODE preamity, there is no unique solution in the period or since , the default problem! %# −! ß %a b has a unique solution in range b! ß % Þ 3. Discrete functions of from , > +8 > multiple 1 1 # 1 Default problem has a unique
solution in the period ‰1 # 1 # $ ß Þ 5. œ #>Î 1 > œ; œ $ > Îa b% > % > ###B œ # # ß #Þ. Default problem has a unique solution in the range b6 has defined function and continuity over time _a. .a b! Continuous function anywhere on the plane, straight > ß Ca b, except some derivative lines are C œ #>Î'0'C œ (>Î>
&Ca b# same region of continuity 9.The function is discrete along the coordinates axis, and on hyperbole > ß Ca b > C œ # # in addition '0 C 68 >C 'c c > C œ # > Ca b k k b # has discrete points #เหมือนกัน 10. Continuous anywhere on the plane Some derivatives also>ß C '0Î'Ca b continuous everywhere 12.The function
is discrete along the lines and of 0 > ß C > œ 5 C œ b 1 derivatives have a region of continuity '0Î'C œ -9> > Î Ca b b# the same 14. The solution is available as long as C > œ C ÎÐ C > ÑÞ C ! ÎCa b! The equation can be sorted out by merging both sides and calling CÎC .> Þ$ #C #C. If , then #C > C !
Î#C œ !! ! ! provides a solution for all. If a solution exists for C > œ ! Î#Ca b! 16 . Equation www.ziie.ir 51. —— ——CHAPTER 2. __ Cœ >Î Þ# a b solution >$ is an existing solution as long as C > œ 68 > C Þa b k$! Þ C 240 !! ! ! # $$a k k solution, although
theorem does not guarantee one solution exists as long as #Þ%Þ# Ñ b b > /B: $C Î# Þ > $#! $C Î # $b $C! In addition, please note that slopeszero balance solution Cœ !! œ $19 www.ziie.ir 52. —— ——CHAPTER 2. ___ >>_! ! _> ß C! !b
Right of parabola unduly car shots approaching parabola . These solutions tend to be _ Þ 21 defined, which is the step function of Heaviside C > œ; -? œ C! œ! 1000 C - $Î# œ Þ- - - #Î $ b bˆ ‰ b + Þ - œ $ Î # ÞLet #Î $ b, Þ - œ # $ Î # ÞLet #Î $ b - Þ C # œ # C > # ! - # C # œ! Notice that for and for! - $Î# $3#$-#Þ - C # − #ß
ÞSo for any -b c d 26 recall Eq #Þ www.ziie.ir. —— ——CHAPTER 2. __> > Þ_b b b (b b is obviously .C œ C > œ = 1 = .= #a b b a b b' > > > ‰ .b . œ /B: : > .> C œ : > œ : > C Þ by definition .b. ‹ Š ‹'- Þ C œ : > = 1 =.= > 1 > œ : > C 1 >
Þ# w > > ..B b. That is C : > C 1 > Þ # b b30 since its subsequent set. œ $ œ œ C œ #C œ Þ # $.@ .@.> .> .C C C$ substitution in different equation yields, which next C œ CC . .@$ & $5 results in different equations after being linear and can be written as@ # @ œ # Þw & 5 b / œ @ Þ ×œ > / -/ Þ #
> # > # >w & 5 The solution is obtained by converting back to the original variable reference. Cœ @ ÞÎ# since, its set followed that and 8 œ $ œ œ C œ #C œ Þ # $.@ .@.> .> .C C C$ Different equations are written as -9 = > X œ CC # .> .@$b> 5$ Additional substitution is this ODE is linear, with
integrating@ # -9 = > X @œ #Þw b> The solution factor is > b ‰ ‰. œ /B: #9= > X .> œ /B: # = 38 > #X> Þ @ > œ #/B: # =38 > #X> /B: # =38 #X #X . Troubleshooting isC default #C œ! œ C > œ / Þ w #> a b, so y on the time when the different equations are b b œ C œ / Þ ß _ ß #
C Cœ! œ -/ Þ C œ C œ -/ Þ# W > , therefore, to enter the limit b c œ C -œ / Þa b we need a global solution of default The problem is C > œ Þ / ! Ÿ > Ÿ / > b œ #> > , Note the continuity of the C>œ Þ derivative #/ > / > b œ #> > , www.ziie.ir 54
—— ——CHAPTER 2. ___ For a single equilibrium point is, so the balance! œ! 0 ! œ + !! +Î, www.ziie.ir 55 —— ——. The only balance point is, so the solution balances Cœ! 9a b> œ! The equilibrium point is of, so the solution
balances Cœ! 9a b> œ —— —— www.ziie.ir! The only balance point is note that and for C œ 0 œ! C ! ◦ w w b as long as the corresponding solution is . Reducing the balanced solution is .9a b> œ semi 9. www.ziie.ir 57. —— ——
CHAPTER 2. 0 C œ $C 9a b> œ #and ! A stable, symptomless balance solution is .9a b> œ! —— ——CHAPTER 2. ___ The balance point is and . . . both balance œ! œ #C 'C %C‡ w # $ โซลูชั่น b เป็น .semistable 15 . การกลับด้านโซลูชัน Eq แสดงเป็นหน้าที่ของ populationa b b b + $
> C และความสามารถในการพกพา กับ,O C œ OÎ$! > œ 68 Þ Î$ CÎO < CÎO Î$ º º a bc da b a bc da b Setting ,C œ #C! 7 œ 68 Þ Î$ #Î$ < #Î$ Î$ º º a bc da b a bc da b That is, If , .7 7œ 68 % Þ < œ !Þ!#& œ &&Þ%& < per year years a b a b, Þ $ C ÎO œ CÎO œIn Eq. , set and . As a result, we obtain! ! X œ 68 Þ
< º º c d c d ! ! Given , and , .! 7œ !Þ œ !Þ* < œ !Þ!#& œ (&Þ()per year years 16 .a b+ www.ziie.ir 59. —— ——CHAPTER 2. —— page 58 17. Consider the change of variable Differentiating both
sides with? œ 68 CÎO Þa b respect to , Substitution into the Gompertz equation yields , with> ? œ C ÎCÞ ? œ <?w วิธีแก้ปัญหา มันเป็นไปตามที่นั่นคือ? œ ? ? / Þ 68 CÎO œ 68 C ÎO / Þ! <> <> b b C O œ /B: 68 C ÎO / Þ 'a b! <> b + O œ)! Þ ' '! C ÎO œ! Þ#& < œ !Þ(C # œ & (Þ&) ' 'give and ,' ' per year b, Þ >solu;
solu% 68 Þ 68 COÎ < 68 C ÎO • b! The corresponding time setting is C œ! Þ(&O œ #Þ#a b7 7 years 19 . ‰ #12 Z+increase outflow that is, since the cross section is, Z's 5 + #12 Þ. ˆ ‰, Þ .2Î.> œ! 2 œ ÞSetting height balance is more since / 5 #1 + # ! 0 2 !w a b/ will follow that the height of the balance is .asymptotically stable b- , 2
depending on the answer in the water level section will tend to approach . œ 0 C œ # C~ ∎ œ Œ unequalified stability B c da b, C C . œ ! _ _ lim lim > Ä > Ä 23 .a b+ C > BÎB œ,! !! ! C/Þ! &gt ‰ ; b b, + . > b - > p _C &—— —— www.ziie.ir gt; p! Therefore, the
proportion of the population fleeing the epidemic is the proportion of the left at the time weak. Please note that and so ifa b b d b + 0 B œ B V V + B 0 B œ V V $+ B - # w # bV V ! !- , the only balance point is and hence the solution 9a b> œ ! If there is a balance point ,- - at the moment and therefore the solution is, 0 ! bˆ ‰È -
9 www.ziie.ir 61. —— ——CHAPTER 2. ___ And since the equation is queue Bß C œ #B $ R B B œ #C # Q œ œ œ b œ b œ œ b % Integration with , while holding a fixed, output Q B C <a bBß C œ œ B $B 2 C œ 2 C# w b b. Now and equal the result in the <C function possible, so
the solution is 2 C œ C #C Bß œ B $B C #Ca b # <defined. As B $B C #C œ -# #2 #B #C #B . 4.First divided both parties by us now with ABS#BC#Þ qbßcœcrbßcœ bab band of because the resulting equation is Q œ R œ! Of course, integration with , Q B while holding a fixed, inC <a b bbß B b œ BC 2 C. Differences about
we found that and hence œ B 2 C œ R 2 C œ! 2 C œ !< <C C w b a b bSetting is acceptable, so the solution is defined. 6. Write a given equation. Now b + B , C . b, b-c. C Q Bß C œ œ +B , C and . -C Q Á Ra b C B 8.And please note that , andQ Bß C œ / =38 C $C R Bß œ œ $B / =38 C Q Á Ra b b B, so the equations are not
exactly different. Since given Q Bß C œ CÎB 'B R B B œ 68 B # Q œ R œ Î B b b Equation C B Absolute Integration with , while holding fixed, resulting in R C B <b b œ C 68 B #C 2 B Þ B œ C ÎB 2 BDifferentiating about , .<B setting we found and hence . $Bw #b solution b is implied as $B # C 68 B #C œ -11 and note that and hence
Bß C œ B 68 C BC B b œ C 68 B BC Q Á B b b B different equations are not exactly different 13. Q Bß C œ #B C R Bß œ œ #C B Q œ R œ a b band. Of course, integration with , while holding fixed, output Q B C <bBß C œ œ B BC 2 C œ B 2 C R 2 C œ #C #w b now . œ C B b œ œ B BC Ca b b #< implied as B BC
C œ œ œ $# # trigger the default solution specific solution isa b b BC C œ (## The clear pattern of the solution is C B œ B #) $B Þa b' È # so the solution is valid for as long as $B Ÿ#) Þ #16 Q Bß C œ C / B R B Bß C œ #BC #BC #BC #BC #BC, Please also note that the C equation and the given equation is / ÞB #BC #BC #,BC / ÞB #BC
#BC, of course, as long as the œ integration www.ziie.ir www.ziie.ir.