***Solution Section* 1.7 – Properties of Determinants: Cramer’s Rule**

***Exercise***

Use Cramer’s Rule with ratios  to solve *A****x*** *= b*. Also find the inverse matrix . Why is the solution ***x*** is the first part the same as column 3 of ? Which cofactors are involved in computing that column ***x***?



Find the volumes of the boxes whose edges are columns of ***A*** and then rows of .

***Solution***



  



The solution is: 

  

  

  





 



The solution ***x*** is the third column of  because ***b*** = (0, 0, 1) is the third column of *I*.

The volume of the boxes whose edges are columns of ***A*** = det(***A***) = 2.

Since . The box from rows of  has volume 

***Exercise***

Verify that  and determine whether the equality  holds



***Solution***

















Thus, 























***Exercise***

Verify that  

***Solution***















***Exercise***

Verify that  

***Solution***













***Exercise***

Verify that  

***Solution***













***Exercise***

Use Cramer's rule to solve the system 

***Solution***











**∴ *Solution***: 

***Exercise***

Use Cramer's rule to solve the system 

***Solution***

  

 

 

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∴ ***N*o** ***Solution***

***Exercise***

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∴ ***No*** ***Solution***

***Exercise***

Use Cramer's rule to solve the system ****

***Solution***





∴ ***Solution:*** 

***Exercise***

Use Cramer's rule to solve the system 

***Solution***



 

 

 

∴ ***Solution***: 

***Exercise***

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**∴ *Solution***: 

***Exercise***

Show that the matrix *A* is invertible for all values of θ, then find  using 



***Solution***







⇒ ***A*** is invertible

  

  

  

  

  

  







