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         Math. 314 - Homework Assignments, Quizzes, Exams
               update: Fri Apr 10 16:23:44 MDT 2009
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Only problems marked with a * will be turned in and used for quizzes;
solutions will be posted for these in advance. The other problems listed
are related and can be used for additional practise.
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 1( 1/20) Sec. 1.1, Systems of linear equations.
          p.11  2d, 6(a,e*,f,h*), 7, 8*
 2( 1/22) Sec. 1.2 Row echelon form; examples from traffic flow, circuits.
          p.29  5(e*,f,g*,j), 6(a,d*), 11, 12*                          I
Sets 1-2 due 1/27
--------------------------------------------------------------------------
 3( 1/27) Sec. 1.3 Matrix algebra.
          p.57  2(abcdef),3,4(abc),7(ab),10*,13(abc)*,14(abc),26(ab)*
 4( 1/29) Sec. 1.3-4 Matrix inverses and their computation
          p.69  9[(a*), b(i*,ii*,iii)], 10(a,e,g, b*, f*, h*), 11(a*,b*)
Sets 3-4   due 2/03                                                       II
--------------------------------------------------------------------------
 5( 2/ 3) Sec. 1.3 Applications: graphs and searches
          Sec. 1.4 Elementary matrices.
      due 2/10   p.69  3(abc), 4(abc)*, 5(abc), 6(ab), 8(ac)*, 8(bd)
 6( 2/ 5) More on elementary matrices; partitioned matrices.
          p.70 6(a*,b*), 12(a,b*)
          p.79 4(c*,d*), 5(a,b,c*,d*), 11*
          p.88 (Ch.Test A) 4*
          p.89 (Ch.test B) 4(a,b), 5(a,b), 6*, 7*, 9
Sets 5-6 due 2/10                                                     III
++++++    MATLAB Project 1 (due 2/24) p.83(2)*, p.84(6)*, p.112(5)*
--------------------------------------------------------------------------
 7( 2/10) Sec. 2.1 Determinant of a matrix.
          Sec. 2.2 Properties of determinants.
          p.103  2(ab)*, 3 (bdf)*,(ace), 4*, 10, 11
 8( 2/12) Cramer's rule
          p.109  2(a*,b,c,e*), 3*, 5, 14*
          QUIZ 1  (30')  Secs. 1.(1-4)
Sets 7-8 due 2/19                                                      IV
--------------------------------------------------------------------------
 9( 2/17) Cramer's rule
10( 2/19) Sec. 3.1 Vector spaces; definitions and examples.
          p.121 1*, 2, 15, 16*
          Sec. 3.2 Subspaces.
          p.131 2(a*,b*,c*,d), 4(a,d)*(b,c), 11(a*,b) ,12, 14(a,c)*(b,d)
          3.3 Linear independence.
          p.144 2(bde)*,4(ac)*(b), 5(ab), 14*, 15, 16
Sets 9-10 due 2/26                                                      V
    (Quiz 2 on Ch.2 will be held on Thursday, 2/26
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11( 2/24) 3.2 Subspaces
          p.132(3.2.10(ace)*,(bd)),
          3.3 Linear independence.
          p.144(3.3.6a,b*,c*,d)
12( 2/26) Sec. 3.4 Basis and dimension.
          p.150  3*, 4, 5, 10*
          Quiz 2 (30') Secs 2.(1-3)
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Sets 11-12 due  3/5                                                        VI
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13( 3/ 3) Sec. 3.4 Basis and dimension.
          p.150  7*, 14(ab)*(cd)
          dates, topics and problems are tentative
14( 3/ 5) Sec. 3.6 Row space - column space.
          p.167  1(a,b*,c), 2(a,b*,c*), 4(a,d*,f), 7(a*,b*), 9(a*,b*), 15(a,b)
Set  13-14  due 3/12                                                       VII
---------------------------------------------------------------------------
15( 3/10) Sec. 3.5 Change of basis.
          p.161  1(a*,b), 2(a*,b--parts refer to prob.1), 5*, 6, 7*, 8, 9*
          MATLAB Project 2 (due  4/ 7) p.170(1)*, p.206(1)*
          Sec. 4.1 Linear transformations: definitions.
          p.195  1(a*,b*,c), 4*, 5(a,c), 8(a)(bc)*
16( 3/12) Sec. 4.2 Matrices and transformations.
          p.196  1(a,b,c), 2(a,c), 3(b,c), 4(a,b*),5(a*,b,c,d*),6*,
                 8, 9, 13*,14(a*,b),15*, 10(a,b*,c*,d), 18(a*,b*,c)
          p.196, 11(c*,d*,e,f), 12*
Set  15-16    due  3/24                                                   VIII
---------------------------------------------------------------------------
XX( 3/15 --  3/22) SPRING BREAK
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17( 3/24) Class cancelled
18( 3/26) Sec. 5.1 Scalar product.
          p.223   2(a*,d), 3(c*,d), 8(a,b*)
          Quiz 3 (40') Secs 3.(1-4), 3.5, 3.6
          (the quiz will include a problem on finding a transition
           matrix, as I discussed in class on 3/12)
Set     18 due  4/ 2                                                      VIII
---------------------------------------------------------------------------
19( 3/31) Sec. 5.2 Orthogonal subspaces.
          p.233  1(a*,b,c,d*), 2*, 4, 5*, 6, 13(a*,b*,c,d)
20( 4/ 2) Sec. 5.3 Least squares
          p.243 1(b,c*), 2* (for problem 1c), 3(a,b*), 4(a,b*)
          p.244, 5*, 7*, 14*
Sets 19-20 due  4/ 9
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21( 4/ 7) Sec. 5.4 Inner product spaces.
          p.252   1*, 2, 3*, 4(a*,c), 7(b*,c), 13, 14, 15(a,b),
                  16*, 17*, 24*, 28*
22( 4/ 9) Sec. 5.5 Orthonormal sets.
          p.270  2*, 3*, 7, 8*, 13, 18, 26*
Sets 21-22 due 4/16
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23( 4/14) Sec. 5.5 Orthonormal sets.
          p.270, 14*, 19*, 24*, 25*, 27*, 28*
          Quiz 4 (30') Secs 4.(1-2)
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          --Under construction below this point--
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24( 4/16) Sec. 5.6 Gram-Schmidt Orthogonalization.
          p.281 1(a*,b), 2(a*,b), 5*, 6, 7*, 8
          Matlab Project III (due  4/30) p. 292 (3), p. 294 (5)
Sets 23-24 due  4/23
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25( 4/21) Review--Ch. 5
26( 4/23) Sec. 6.1 Eigenvalues and eigenvectors.
          Sec. 6.2 Systems of linear ODEs.
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27( 4/28) Sec. 6.2 Linear ODEs
          Sec. 6.3 Diagonalization.
          Quiz 5(30') Secs 5.(1-6)
28( 4/30) Review
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29( 5/ 5) Sec. 6.4 Hermitian matrices.
30( 5/ 7) Review
          Quiz 6 (30') Secs 6.(1-4)
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-- Cummulative Final Examination (Tue 5/12  10:00-12:00, DSH 327)
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