Hour 21 plan

October-28-12
7:32 PM

$A = CDC^{-1}$ $\quad D = C^{-1}AC$ $\quad$ w/ $C = (v_1 | \dots | v_n)$

1. Generalities about exponentiation, to the point of $e^{C^{-1}AC} = C^{-1}e^{A}C$

2. $e^{D} = \dots$

3. Example w/ diagonalization.

4. Jordan form; exponentiating it, finding it.

5. Example.

```
In[1]:= D1 = {{1, 0}, {0, -2}}; D2 = {{2, 1}, {0, 2}}; CC = {{1, -1}, {-1, 2}};
        Inverse[CC] // MatrixForm

Out[2]//MatrixForm=
        2  1
        1  1

In[3]:= MatrixForm /@ {D1, CC.D1.Inverse[CC]}

Out[3]= {{1, 0}, {0, -2}}, {{4, 3}, {-6, -5}}}

In[4]:= MatrixForm /@ {D2, CC.D2.Inverse[CC]}

Out[4]= {{2, 1}, {0, 2}}, {{3, 1}, {-1, 1}}}
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Hour 22: phase portraits.