Study list for ch.9/10 test (vectors and matrices)

Ok to use a calculator.
No notes.

CHAPTER 9

Be able to calculate the following for 2- and 3-dimensional vectors:

- component form given two endpoints
- magnitude and direction *(sketch diagram)*
- angle between 2 vectors
- sum of unit vectors
- add, subtract, & multiply by scalars
- simplify equations
- dot product *(vectors are perpendicular if = 0)*
- cross product *(creates a 3rd vector that is perp)*

Also, know the Law of Cosines and Law of Sines so you can solve for the magnitude and direction of a **resultant vector** from a given diagram.

CHAPTER 10

Be able to perform matrix operations by hand and/or with a calculator when appropriate:

- add, subtract, multiply, scalars
- determinant *(if = 0, inverse does not exist) DNE*
  (if ≠ 0, then there is an inverse)
- inverse
- solve system of equations by writing a matrix equation, then applying the inverse

$$\begin{bmatrix} & & \\ & & \\ & & \end{bmatrix}\begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} \\ \\ \end{bmatrix} \rightarrow \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} \\ \\ \end{bmatrix}$$

A B $A^{-1}B$