Linear. Quiz 5. Name _____ Time_____
Consider the following sets of polynomials in $\mathcal{P}_2$.

$\mathcal{A} = \{x-1, x, x^2+1\},\ \mathcal{B} = \{3x^2, x, x+2, 3\},\ \mathcal{C} = \{3x^2, x^2-1, x+2\},$

$\mathcal{D} = \{3x^2, x+2\},\ \mathcal{F} = \{x^2, x+2, 3x^2+3x+6\}$

(1) Which two are lin. dep.? Explain why for each.

(2) Which two do not span $\mathcal{P}_2$? Explain why for each.

(3) Which two are bases for $\mathcal{P}_2$?

(4) For the two bases you just found, in alphabetic order, find the coordinate vector for $f(x) = 5x^2 + 7x$. (Two answers.)

(5) Find the change of basis matrix from the first to the second (alphabetically) of the two bases you found.