Linear. Quiz 5. Name _____ Time_____
Consider the following sets of polynomials in $\mathcal{P}^2$.

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

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

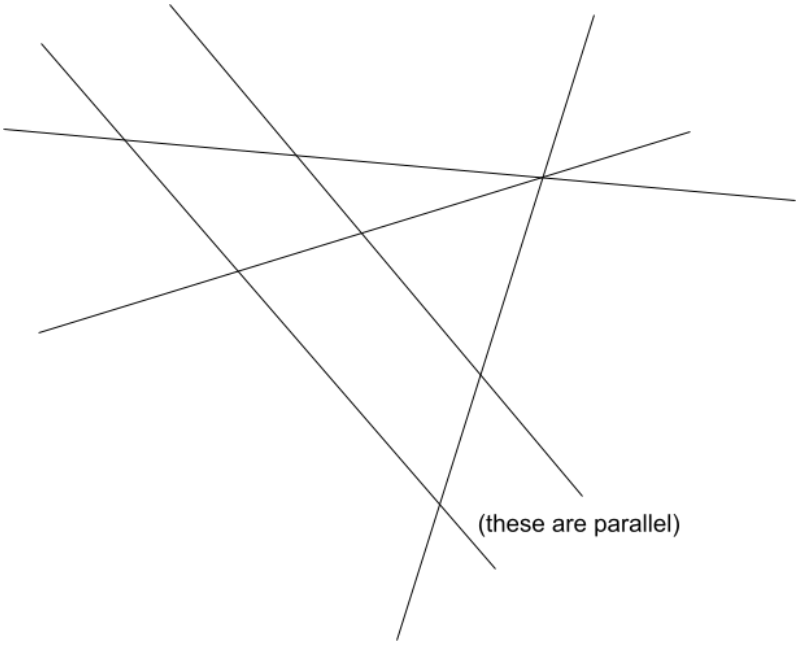
(1) Which two are lin. dep.?

(2) Which two do not span $\mathcal{P}^2$?

(3) Which two are bases for $\mathcal{P}^2$?

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

(5) These five lines are described by a matrix equation $A\mathbf{x} = \mathbf{b}$.
Does $\mathbf{b} = \mathbf{0}$?_____
Does a solution $\mathbf{x}$ exist?_____
Are the columns of A lin. indep. or lin. dep.?_____
Are the rows of A a basis?_____


(these are parallel)