Question 1		Question 2	Original			Translate		Rotate		Scale				
vector	A mathamatical object, a size, a magnitude and a direction		x	у		2		-1 30 degress	ccw	Right * 1.5	Top * 1.5			
basis vector	A set of elements in a vector space V is called a set of basis vectors if the vectors are linearly independent and every vector in the vector space is a linear combination of this set.			2	2	4		1 2.964101615	2.866025404	2.964101615	2.866025404			
orthonormal basis	A subset of a vector space, with the inner product, is called orthonormal if when. That is, the vectors are mutually perpendicular. Moreover, they are all required to have length one:			2	4	4		3 1.964101615	i 4.598076211	1.214101615	5.897114317			
vector space	A vector space (also called a linear space) is a collection of objects called vectors, which may be added together and multiplied ("scaled") by numbers, called scalars.			4	2	6		1 4.696152423	3.866025404	7.294228634	5.366025404			
frame	A frame of an inner product space is a generalization of a basis of a vector space to sets that may be linearly dependent.			4	4	6		3 3.696152423	5.598076211	5.544228634	8.397114317			
affine transformation	A linear mapping method that preserves points, straight lines, and planes.													
Original		Translate					Rotate	•			Scale			
10 8 6 4 2 0 0 2	4 6 8 10	10 8 6 4 2 0 0 2	4	6	8	10	10 8 6 4 2 0 0	2 4	6 8	10	10 8 6 4 2 0 0 2	4	6 8	10
Question 3		Question 4												
v = 3i + 2j	v + w = 7i - 4j	World coord -	<2,4>											
	v * w = 3(4) + 2(-6) = 0	Local coord -	<2cos(theta)	,4sin(thet	a)>									
	v x w = 8i -1j	You can use a	dot product	to determ	nine whe	ther or not 2 v	ectors	are orthogonal. (you o	an)					
	v = sqrt(13)	Polar coord -	<sqrt(20), tar<="" td=""><td>n^-1(2)></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></sqrt(20),>	n^-1(2)>										
unit vector:	(1 / v) * v = 3/sqrt(13)i + 2/sqrt(13)j			· · ·										