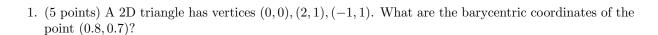
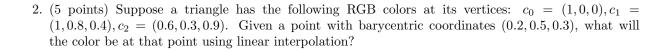
## Name

## UT EID





<sup>3. (5</sup> points) Suppose a triangle has the following vertex normals:  $n_0 = (1,0,0), n_1 = (0,1,1), n_2 = (2,1,0)$ . Given a point with barycentric coordinates (0.2,0.5,0.3), what will the normal be at that point using linear interpolation?

4.	A light source located at $(0,0,10)$ emits white light for specular, diffuse and ambient reflections. A
	triangle has vertices $v_0 = (0,0,0), v_1 = (1,0,0), v_2 = (1/2,1,0)$ . Each vertex has an associated normal,
	which are $n_0 = (0,0,1), n_1 = (0,0,1), n_2 = (0,\sqrt{2}/2,\sqrt{2}/2)$ . The triangle has material properties
	$k_d = [1,0,0]', k_s = [0,1,0]'$ and a specular coefficient of 10. A point p is located at barycentric
	coordinates $(0.2, 0.6, 0.2)$ with respect to the triangle. The viewer's eye is at $(5, 0, 10)$ . Using the
	Phong reflection model and assuming no distance attenuation, answer the following questions. You
	may write code to solve the equations if you wish, but you must show all steps, including the values
	of the relevant vectors. Be sure to always normalize your vectors!
	(a) (5 points) What is the diffuse reflection term at vertex u.?

(a) (5 points) What is the diffuse reflection term at vertex  $v_1$ ?

(b) (5 points) What is the specular reflection term at vertex  $v_1$ ?

(c) (5 points) Assuming phong reflection, what is the diffuse reflection term at point p?

	(d)	(5 points) As	suming phong ref	flection, what is	the specular re	eflection term at p	oint $p$ ?
	(e)	to the diffuse					what will happen calculations, just
5.	left the text (a) (b) (c)	to right. That	is, all pixels (0, all pixels in-between	y) are red, all p	ixels (w-1, y)	are green (where	d to green moving $w$ is the width of $B$ for the following
6.	text	ure coordinate		$=(1,0), vt_2=$	(0.5, 1). Let po		vertices that have entric coordinates