Name:

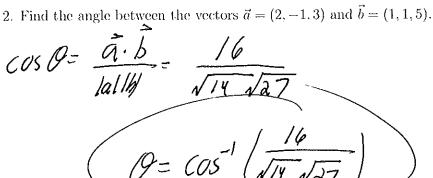
SOLVTION

241S1 Quiz #1 - September 8, 2015, 10 a.m.

/center (2,-3,1/2) Radus V22,25

1. Find the center and radius of the sphere $x^2 + y^2 + z^2 - 4x + 6y - z = 9$.

X3-4X+4+42+64+9+22-2+1=9+4+9+1/4 (X-2)2+(Y+3)2+ (2-1/2)= 2225



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241S1 Quiz #1 - September 8, 2015, 10 a.m.

- 1. Find the center and radius of the sphere $x^2 + y^2 + z^2 4x + 6y z = 9$.
- 2. Find the angle between the vectors $\vec{a}=(2,-1,3)$ and $\vec{b}=(1,1,5)$.

Name:

SOLUTIONS

241S2 Quiz #1 - September 10, 2015, 11 a.m.

1. Let $\vec{b} = (6, 5, 2)$ and $\vec{a} = (1, -1, 1)$. Find the vector projection of \vec{b} onto \vec{a} .

 $\frac{\vec{b} \cdot \vec{a}}{\vec{a} \cdot \vec{a}} \cdot \vec{a} = \frac{3}{3} \cdot \vec{a} =$

coincidence

that this is

a!

2. Use the scalar triple product to verify that the vectors $\vec{u} = (1, 5, -2), \vec{v} = (3, -1, 0)$ and $\vec{w} = (5, 9, -4)$ are coplanar.

 $\vec{U} \cdot (\vec{V} \times \vec{W}) = (1,5,-2) \cdot (4,12,32) = 4+60-64$ = 0 = 0 = caplanar

Name:

241S2 Quiz #1 - September 10, 2015, 11 a.m.

1. Let $\vec{b} = (6, 5, 2)$ and $\vec{a} = (1, -1, 1)$. Find the vector projection of \vec{b} onto \vec{a} .

2. Use the scalar triple product to verify that the vectors $\vec{u} = (1, 5, -2), \vec{v} = (3, -1, 0)$ and $\vec{w} = (5, 9, -4)$ are coplanar.

Name:

241S3 Quiz #1 - September 10, 2015, 10 a.m.

1. Let $\vec{b} = (6,5,2)$ and $\vec{a} = (1,-1,1)$. Find the scalar projection of \vec{b} onto \vec{a} .

$$\vec{b} \cdot \frac{\vec{a}}{|\vec{a}|} = \frac{3}{\sqrt{3}} = (\sqrt{3})$$

2. Find the volume of the parellelepided with adjacent edges PQ. PR and PS, where the points are P = (-2, 1, 0), Q = (2, 3, 2). R = (1, 4, -1), S = (3, 6, 1).

$$\vec{p}\vec{\alpha} = [4, a, \lambda] \quad \vec{p}\vec{R} = [3,3-1] \quad \vec{p}\vec{S} = [5,5,1]$$

$$\vec{p}\vec{\alpha} \cdot (\vec{p}\vec{R} \times \vec{p}\vec{S}) = \vec{p}\vec{\alpha} \cdot (8, -8, 0) = (16)$$

Name:

 $241\mathrm{S}3$ Quiz #1 - September 10, 2015, 10 a.m.

1. Let $\vec{b} = (6, 5, 2)$ and $\vec{a} = (1, -1, 1)$. Find the scalar projection of \vec{b} onto \vec{a} .

2. Find the volume of the parellelepided with adjacent edges PQ, PR and PS, where the points are $P=(-2,1,0),\ Q=(2,3,2),\ R=(1,4,-1),\ S=(3,6,1).$