

Math 261 Exam 1, Fall 2007

Show all work!		Name:	Score	
1.	Given the point $P(12,6,4)$, find: a) The length of the vector \mathbf{P} . Ans:_____	b) A sphere containing the origin and P . Ans:_____	1	
			2	
			3	
			4	
			5	
			6	
2.	A force 4 N force \mathbf{F} applied to a mass at an angle of $\pi/6$ displaces the mass by $ \mathbf{r} = 3$ m. Find: a) The work done by the force. Ans:_____	b) The component of \mathbf{F} in the direction of \mathbf{r} . Ans:_____	7	
			8	
			9	
			10	
			Tot	
3.	Find the equation of the line through the point $P(3, -4, 6)$ and: a) Perpendicular to $3x - 2y + z = -9$. Ans:_____	b) Parallel to the line to $(1/2)(x - 2) = 3y = (z + 5)/4$. Ans:_____		
4.	Given the points $O(0, 0, 0)$, $P(1, 1, 0)$, $Q(0, -1, 2)$, and $R(-1, 0, 1)$ and Find: a) The area of $\triangle PQR$. Ans:_____	b) The volume of the tetrahedron $OPQR$. Ans:_____		
5.	A plane \mathcal{P} contains the parallel lines $\mathbf{r}(t) = \langle -2t, 2 + 3t, 5 + t \rangle$ and $\mathbf{r}(t) = \langle 1 - 2t, 3t, 2 + t \rangle$. Find: a) A normal \mathbf{N} to the plane \mathcal{P} . Ans:_____	b) The equation of the plane. Ans:_____		
Extra Space				

