

Math 261 Exam 1, Fall 2003

Show all work!	Name:	Score	
<p>1. Given the two points $P(3,-2,1)$ and $Q(1,4,2)$, find the equation of:</p> <p>a) The line through P and Q.</p> <p style="text-align: right;">Ans:_____.</p>	<p>b) The sphere through Q centered at P.</p> <p style="text-align: right;">Ans:_____.</p>	1	
		2	
		3	
		4	
		5	
		6	
<p>2. Given the force $\mathbf{F}=\langle 3, 2, -2\rangle$ and the displacement $\mathbf{r}=\langle 6, -4, -1\rangle$. Find</p> <p>a) The magnitude of the force.</p> <p style="text-align: right;">Ans:_____.</p>	<p>b) The work done by the force.</p> <p style="text-align: right;">Ans:_____.</p>	7	
		8	
		9	
		10	
		Tot	
<p>3. Find the equation of the plane through the point $P(-1, 3, 2)$ and :</p> <p>a) Parallel to $3x - 4y + 5z = 1$.</p> <p style="text-align: right;">Ans:_____.</p>	<p>b) Perpendicular to $\mathbf{r}(t)=\langle 3 + 3t, 3 - 5t, 4\rangle$.</p> <p style="text-align: right;">Ans:_____.</p>		
<p>4. Given the points $P(2, 0, 0)$, $Q(0, 5, 0)$, $R(0, 0, 9)$ and $S(0, 0, 0)$ Find:</p> <p>a) The area of $\triangle PQR$.</p> <p style="text-align: right;">Ans:_____.</p>	<p>b) The volume of the tetrahedron $PQRS$.</p> <p style="text-align: right;">Ans:_____.</p>		
<p>5. A plane \mathcal{P} contains the two lines $\mathbf{r}(t) = \langle 2 - 3t, 2t, 1 + t \rangle$ and $\mathbf{r}(t) = \langle -1 + 2t, 2 - 3t, 2 \rangle$. Find:</p> <p>a) A normal \mathbf{N} to the plane \mathcal{P} .</p> <p style="text-align: right;">Ans:_____.</p>	<p>b) The equation of the plane.</p> <p style="text-align: right;">Ans:_____.</p>		
<p>Extra Space</p>			

