MATH 206 A

Solutions to Review for Test 1

1) (a) $\sqrt{(3-2)^2+(-3-1)^2+(2-4)^2} = \sqrt{21}$

(b) $\left(\frac{3+2}{2}, \frac{-3+1}{2}, \frac{2+4}{2}\right) = (2.5, -1, 3)$

(c) Two possible parametrizations:

$(3,-3,2)+t(-1,4,2)$ ie $x=3-t$, $y=-3+4t$, $z=2+2t$

At $t=0$, point is A. Point B is given by $t=1$.

$(3,-3,2)+t(-.5,2,1)$ ie $x=3-0.5t$, $y=-3+2t$, $z=2+t$

At $t=0$, point is A. Point B is given by $t=2$

2) (a) To obtain graph of $z=\sqrt{x^2+y^2}-4$, reflect the graph of $z=-\sqrt{x^2+y^2}$ across xy-plane and shift down 4 units.

(b) To obtain graph of $z=(x-1)^2+2$, shift the graph of $z=x^2$ to the right along positive x-axis by 1 unit and shift up by 2 units.

3) (a) Sphere of radius 3 centered at $(1,-2,-5)$

(b) The elliptic paraboloid $y=x^2+z^2$ reflected across xz-plane and moved up 3 units.

(c) Cylinder of radius 2 whose axis is the x-axis

(d) Plane parallel to yz-plane passing through $(5,0,0)$.

4) Solid cone between the planes $z=0$ and $z=2$.