Name: ID #: Section #:

Q1) [**2pts**] Find an equation of the sphere with center $(2, -3, 6)$ that touches the xy-plane

Q2) [**4pts**] Consider the vectors $\vec{a} = \langle 3, 6, -2 \rangle$ and $\vec{b} = \langle 1, 2, 3 \rangle$.

(a) Find a vector that has the same direction as $\vec{a}$ but has length 2.

(b) Find the vector projection of $\vec{b}$ onto $\vec{a}$.

Q3) [**4pts**] Find the area of the region that lies inside both curves $r = \sqrt{3}\cos\theta$ and $r = \sin\theta$.

Name: ID #: Section #:

Q1) [**2pts**] Find an equation of the sphere with center $(2, -3, 6)$ that touches the yz-plane

Q2) [**4pts**] Consider the vectors $\vec{a} = \langle 3, 6, -2 \rangle$ and $\vec{b} = \langle 1, 2, 3 \rangle$.

(a) Find a vector that has the same direction as $\vec{b}$ but has length 3.

(b) Find the scalar projection of $\vec{b}$ onto $\vec{a}$.

Q3) [**4pts**] Find the area of the region that lies inside both curves $r = \sqrt{3}\sin\theta$ and $r = \cos\theta$.