Math 233 - Quiz 3

Name _____

September 8, 2022

Score _____

Show all work to receive full credit. Supply explanations when necessary. This quiz is due September 13.

---

1. (2 points) Find an equation of the plane containing the points $P\,(2, 4, -1)$, $Q\,(3, 3, 8)$, and $R\,(0, 5, -3)$.

2. (2 points) Find the distance from the point $P\,(9, -4, 5)$ to the line described by the symmetric equations

$$4 - x = \frac{y - 6}{3} = \frac{z}{5}.$$

Turn over.

3. (2 points) Argue that the planes are parallel. Then find the distance between them.

$$P_1 : \ 2x - 3y - 7z = 19 \qquad\qquad P_2 : \ -2x + 3y + 7z = 20$$

4. (2 points) Find a set of symmetric equations for the line of intersection of the planes

$$x + y - 3z = 8 \qquad \text{and} \qquad 3x - 5y + z = 4.$$

5. (2 points) Find the angle between the planes in problem 4. Write your final answer in degrees, rounded to the nearest hundredth.