

MATH 32A: REVIEW PROBLEMS FOR MIDTERM 1 SOLUTIONS

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Problem 1. $10x + 4y - z = 13$.

Problem 2. $\sqrt{3}$.

Problem 3. $x = 4t$, $y = -t + 3$, $z = -3t + 3$ (answers may vary depending on the choice of the initial point).

Problem 4. $P = \{(x, y, z) \mid (x + 3)^2 + (y + 4)^2 + (z - 2)^2 = 8\}$. P is a sphere with radius $2\sqrt{2}$ and center of $(-3, -4, 2)$.

Problem 5. $(1, 1, 1) : \theta = 13.03^\circ$; $(2, 4, 8) : \theta = 5.59^\circ$.

Problem 6. $\vec{r}(s) = \langle 2\frac{s+3}{3} \cos(\ln(\frac{s+3}{3})), 2\frac{s+3}{3} \sin(\ln(\frac{s+3}{3})), \frac{s+3}{3} \rangle$, $\kappa(0) = \frac{2\sqrt{2}}{9}$.

Problem 7. $\vec{T}(0) = \langle \frac{2}{3}, \frac{2}{3}, \frac{1}{3} \rangle$, $\vec{n}(0) = \langle -\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2}, 0 \rangle$, $\vec{B}(0) = \langle -\frac{\sqrt{2}}{6}, -\frac{\sqrt{2}}{6}, \frac{2\sqrt{2}}{3} \rangle$; normal plane: $2x + 2y + z = 5$; osculating plane: $-x - y + 4z = 2$.

Problem 8. Will be discussed in review session.

Problem 9. Will be discussed in review session.

Problem 10. Will be discussed in review session.