Math 3593 Practice for exam 1.

1. Find the equation of the line tangent to the curve with parametrization $\phi(t) = (t^3, \sin t, e^t)^T$ at the point $(1, \sin(1), e)^T$.
2. Find the equation of the tangent plane to the graph of $\sin(x + y)$ at $(\pi, \pi/2)^T$.
3. Find the equation of the tangent plane to $x^2 + 2y^2 + 3z^2 = 6$ at $(1, 1, 1)^T$.
4. Find the equation of the tangent line to the intersection of $x^2 + 2y^2 + 3z^2 = 6$ and $x^2 + y^2 - z^2 = 1$ at the point $\begin{pmatrix} 1 \\ 1 \\ 1 \end{pmatrix}$.

page 275 Section 2.10: nos 2, 4, 6, 7, 8, 9, 10, 12, 16
page 289 Section 2.11: nos 2.24, 2.29, 2.30, 2.31
page 303 Section 3.1: nos 7, 8, 21
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page 333 Section 3.4: nos 1, 3,
page 386 Section 3.9: nos 3.1, 3.2, 3.5, 3.7, 3.10, 3.11, 3.20, 3.22.