Math 263 Sample Final Exam Answers

1. (a) $\langle 12, 20, 32\rangle$ (b) $\dfrac{x-1}{12} = \dfrac{y-1}{20} = \dfrac{z-2}{32}$

2. (a) $\langle 0, -3/5, 4/5\rangle$ (b) 70

3. Max is 18 (at point $(6, 3, -2)$ on bounding surface); min is -18 (at point $(-6, -3, 2)$ on bounding surface).

4. $\vec{\mathbf{x}}_1 = \langle 1/2, 1/2\rangle$

5. (a) $m = 2$, $p = 2$, $n = 2$, and q can be anything (b) $4q$

6. $\dfrac{\pi}{2}a^4\sqrt{1 + \dfrac{b^2}{a^2}}$

7. 24π

8. (a) 0 (b) 4π