Assignment 4 – All 3 parts – Math 243

Due: Wednesday, Feb. 8, 2017, at the beginning of class

<u>Textbook exercises:</u>[1]

Section 11.5: $22, 24, 26, 32, 40, 42, 48, 70$ (when the book asks for the equation for a plane, give your answer in the form $Ax + By + Cz = D$). Also, $54, 56, 58, 60$

<u>Other exercises:</u>

(1) Find a parametric vector equation for the plane containing the three points $P = (1, 1, 5), Q = (2, -1, 2)$, and $R = (-3, -2, -5)$. Then, find a vector perpendicular to this plane.

(2) Find a parametric vector equation for the plane containing the parallelogram with vertices $P = (0, 1, 3), Q = (1, 1, 3), R = (0, 0, 3)$, and $S = (1, 0, 3)$. Then, write down a non-parametric component equation for this plane.

(3) Find a non-parametric component equation for the plane perpendicular to $\mathbf{n} = (4, -1, 2)$ through the point $P_0 = (1, 3, 7)$.

(4) Find a non-parametric component equation for the plane through the point $P_0 = (1, 2, 3)$ containing the two vectors $\mathbf{u} = (3, 0, 1)$ and $\mathbf{v} = (1, 2, -1)$.

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[1]From Hass, Weir, and Thomas' *University calculus: alternate edition*