

Name: _____

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Quiz 1 MAC-2313

Spring 2020

1. (3 pts) Match the following equations with the appropriate surface:

(i) $x^2 = 2y^2 + 3z^2$

(ii) $x^2 + 2y^2 - 3z^2 = 1$

(iii) $(x + 1)^2 + 2(y - 1)^2 + 3(z - 2)^2 = 10$

(iv) $x = 1 + 2y^2 + 3z^2$

(v) $(x + 1)^2 - 2(y - 1)^2 - 3(z - 2)^2 = 10$.

(vi) $2y^2 - 3z^2 = 1$

(a) hyperboloid with one sheet

(b) hyperbolic cylinder

(c) hyperboloid with two sheets

(d) elliptic cone

(e) elliptic paraboloid

(f) ellipsoid

2. (8 pts) For both parts of this problem consider the lines L_1 : $x = t$, $y = -t + 2$, $z = t + 1$, and L_2 : $x = 2s + 2$, $y = s + 3$, $z = 5s + 6$.

(a) (4 pts) Show that L_1 and L_2 are intersecting and determine the point of intersection.

(b) (4 pts) Find the equation of the plane which contains both lines L_1 and L_2 .