M4005 Quiz. February 6, 2006 Name:______________________________

CIRCLE THE LETTERS OF THE TRUE STATEMENTS. CROSS OUT THE FALSE STATEMENTS.

a) Playfair's Axiom was named after a Scottish mathematician named "Playfair".

b) Euclid's Parallel Postulate states: If a straight line crossing two straight lines makes the interior angles on one side together less than two right angles, then the two straight lines will meet on that side.

c) Playfair's Axiom states: " For any line $\mathscr{L}$ and point P outside $\mathscr{L}$, there is exactly one line through P that does not meet $\mathscr{L}$."

d) Playfair's Axiom is equivalent to Euclid's Parallel Postulate (in the presence of the other Euclidean postulates).

e) The *existence* of parallels can be deduced without using the Parallel Postulate (in some form) from the other assumptions of Euclidean geometry.

f) Without using the Parallel Postulate (in some form), one CANNOT deduce the *uniqueness* of parallels from the other assumptions of Euclidean geometry.

g) Without using the Parallel Postulate (in some form), one CANNOT deduce the *equality of alternate interior angles in a figure consisting of two parallels cut by a transversal* from the other assumptions of Euclidean geometry.

h) Without using the Parallel Postulate (in some form), one CANNOT deduce that *the sum of the angles of a triangle is equal to two right angles* from the other assumptions of Euclidean geometry.

i) Without using the Parallel Postulate (in some form), one CANNOT deduce that *the opposite sides of a parallelogram are congruent* from the other assumptions of Euclidean geometry.

j) Without using the Parallel Postulate (in some form), one CANNOT *construct a rectangle* using the other assumptions of Euclidean geometry.