List of errors

"Lessons in Geometry. I. Plane Geometry" by Jacques Hadamard.

July 2009

Page	Text reading…	should read…
33, ex. 17	the lines starting from A are, in decreasing length, as follows: larger side, median (see Exercise 7 in Chapter II), angle bisector, smaller side, altitude.	the lines starting from A are encountered in the following order: larger side, median (see exercise 7 in Chapter II), angle bisector, altitude, smaller side.
57, ex. 39	A triangle with two equal median is isosceles.	A triangle with two equal medians is isosceles.
57, ex. 41	One of these diagonals is half the difference, and the other half the sum, of the sides of the parallelogram. [Error in original text.]	One of these diagonals is equal to the difference, and the other to the sum, of the sides of the parallelogram.
64, ex. 49	show that angle EOB is triple DOA	show that angle EOA is triple DOB
65, par. 62	A line segments whose endpoints	A line segment whose endpoints
74, ex. 55	[last two lines] When O is between O' and A, if the difference OO' – (R-R') is less than OO' – (O'B – OB).	[last two lines] When O is between O' and A, if the difference OO' – (R' – R) is less than OO' – (O'B – OB).
97, ex. 88b	…according as this segment between the two points…	…according as the segment between the two points…
133, par. 128, corollary	COROLLARY. The locus of points C, such that the difference of the distances from C to two fixed points A and B is constant, is a line perpendicular to AB.	COROLLARY. The locus of points C, such that the difference of the squares of the distances from C to two fixed points A and B is constant, is a line perpendicular to AB.
163, 18^{th} line of text	Let BD = a:	Let BC = a:
188, ex. 184	Verify that the two expression for AC…	Verify that the two expressions for AC…
188, ex. 189	the error is less than one ten-millionth of the radius.	the error is less than one ten-thousandth of the radius.
213, par. 204	The harmonic conjugate of the given point with respect to the segment MN is a line (Fig. 181).	The harmonic conjugate P of a given point *a* with respect to segment MN is a line (Fig. 181).
217, par. 211 remark	The triangle aHK is formed by three diagonals of the complete quadrilateral HMKN. [Error in original text.]	Triangle aPP' is formed by three diagonals of the complete quadrilateral HMKN. [Error in original text.]
219, ex. 238	From the preceding exercise (part 2^o)…	From the preceding exercise (part 3^o)…
228, ex. 245	The inverses of circles with a common radical axis are also circles with a common radical axis.	The inverses of circles with a common radical axis are also circles with the same radical axis.
228, ex. 248	Two given circles can always be transformed, by the same inversion, either into two parallel lines or into two concentric circles.	Two given circles can always be transformed, by the same inversion, either into two lines or into two concentric circles.

229, ex. 256	When a variable circle intersects two fixed circles at a constant angle, it also cuts any fixed circle having the same radical axis as the first two at a constant angle.	When a variable circle intersects two fixed circles at constant angles, it also cuts any fixed circle having a common radical axis with the first two at a constant angle.
270, ex. 342	If two triangles are symmetric with respect to the center of their common inscribed circle, the areas of the eight triangles formed by their sides have a product equal to the sixth power of the radius of this circle.	If two triangles are symmetric with respect to the center of their common inscribed circle, the areas of the eight triangles formed by their sides have a product equal to the sixteenth power of the radius of this circle.
313, ex. 369	Through an interior point O of the triangle we draw segments OD', OE', OF' parallel to these, with D ', E', F' on the corresponding sides.	Through an interior point O of the triangle we draw segments OD', OE', OF' parallel to these, with D ' on BC, E' on AC, F' on AB.
314, ex 373	(Prove, using exercise 70, that the points symmetric to P relative to the three sides, are on a line passing through P.)	(Prove, using exercise 70, that the points symmetric to P relative to the three sides are on a line passing through H.)
315, ex 378, 5^o	This circle is orthogonal to the escribed circles. Its center is the same as the center of the circumscribed circle of A'B'C'…	This circle is orthogonal to the escribed circles. Its center is the same as the center of the inscribed circle of A'B'C'…
315, ex. 380	…then triangle O_1OO' must be similar to A_1A''A.)	…then triangle O_1OO' must be similar to A'A''A.)
317, ex. 391	…circle with the parallel to AB passing through M.	…circle with the parallel to AB passing through P.
317, ex. 393	Show that the second common tangent A'B' to these two circles is tangent to a fixed circle, and find the locus of the midpoint of A'B'.	Show that the circle whose diameter is the second common tangent A'B' to these two circles is tangent to a fixed circle, and find the locus of the midpoint of A'B'.
318, ex. 398	Show that these two circles are equal, and that their common radius is one fourth the geometric mean of the radii of C, c, C'.	Show that these two circles are equal, and that their common radius is the fourth proportional to the radii of C, c, C'.

HADAMARD: ELEMENTARY GEOMETRY ERRATA

August 2011

This table lists errors in translation, or in the original text, of the supplementary problems.

Exercise Number	Text reading:	Should Read:
361b	In any triangle, the greater side corresponds to the smaller angle bisector (take the difference of the squares of the bisectors given by the formula of 128b, and factor out the difference of the corresponding sides).	In any triangle, the greater side corresponds to the smaller angle bisector (take the difference of the squares of the bisectors given by the formula of 129, and factor out the difference of the corresponding sides).
364	In the first case, where the minimum is not at a vertex, the square of the minimum is the sum $\ell^2(b^2+c^2-a^2)+m^2(c^2+a^2-b^2)+n^2(a^2+b^2-c^2)$ plus the product of the areas of triangles T and ABC.	In the first case, where the minimum is not at a vertex, the square of the minimum can be expressed in terms of the sum $\ell^2(b^2+c^2-a^2)+m^2(c^2+a^2-b^2)+n^2(a^2+b^2-c^2)$ and the product of the areas of triangles T and ABC.
373	Prove, using Exercise 70, that the points symmetric to P relative to the three sides, are on a line passing through P.	Prove, using Exercise 70, that the points symmetric to P relative to the three sides, are on a line passing through H.
377	Conversely, if the radii of two circles and the distance between their centers satisfy this relation, we can inscribe infintely many triangles in one circle that are also circumscribed about the other.	Conversely, if the radii of two circles and the distance between their centers satisfy this relation, we can inscribe infinitelyinfinitely many triangles in one circle that are also circumscribed about the other.
378	This circle is orthogonal to the escribed circles. Its center is the same as the center of the circumscribed circle of $A'B'C'$, the triangle whose vertices are the midpoints of the sides of ABC.	This circle is orthogonal to the escribed circles. Its center is the same as the center of the inscribed circle of $A'B'C'$, the triangle whose vertices are the midpoints of the sides of ABC.
383	(This point can be considered to be determined by the fact that the triangles with these vertices and with the two segments as bases are equivalent, and they have the same angle at the common vertex.)	(This point can be considered to be determined by the fact that the triangles with this vertex and with the two given segments as bases are equivalent, and they have the same angle at the common vertex.)
385	Find the locus of the center O of the circumscribed circle.	Find the locus of the center O of the inscribed circle.

Exercise Number	Text reading:	Should Read:
391	A variable point M on a circle is joined to two fixed points A, B. The two lines intersect the circle again at P, Q. Denote by R the second intersection of the circle with the parallel to AB passing through M. Show that line QR intersects AB at a fixed point.	A variable point M on a circle is joined to two fixed points A, B. The two lines intersect the circle again at P, Q. Denote by R the second intersection of the circle with the parallel to AB passing through P. Show that line QR intersects AB at a fixed point.
393	Given two points A, B on a line, we draw two variable circles tangent to the line at these points, and also tangent to each other. Show that the second common tangent $A'B'$ to these two circles is tangent to a fixed circle, and find the locus of the midpoint of $A'B'$.	Given two points A, B on a line, we draw two variable circles tangent to the line at these points, and also tangent to each other. These two circles have a second common (external) tangent $A'B'$. Show that as the two tangent circles vary, the circles on diameter $A'B'$ remain tangent to yet another (fixed) circle. Find the locus of the midpoint of $A'B'$.
398	We draw a circle tangent to C, c, D, and another circle tangent to C, c', D. Show that these two circles are equal, and that their common radius is one-fourth the geometric mean of the radii of C, c, c'.	We draw a circle tangent to C, c, D, and another circle tangent to C, c', D. Show that these two circles are equal, and that their common radius is the fourth proportional to the radii of C, c, c'.
408	Given two circles C, C', and two lines which intersect them, the circle which passes (Exercise 107b) through the intersections of the arcs intercepted on C with the chords of the arcs intercepted on C' has the same radical axis as C, C' (use Exercise 149).	Given two circles C, C', and two lines which intersect them, the circle which passes (Exercise 107b) through the intersections of the chords of the arcs intercepted on C with the chords of the arcs intercepted on C' has the same radical axis as C, C' (use Exercise 149).
419b	3°. Construct a quadrilateral $ABCD$ knowing its angles and the parallelogram P; or, knowing P and the ratios $AB : AD$, $CB : CD$. Discuss.	3°. Construct a quadrilateral $ABCD$ knowing two of its angles and parallelogram P; or knowing P and the ratios $AB : AD$, $CB : CD$. Discuss.
421	2°. (k_1) intersects A_2A_1 in two points m_1, n_1 such that $A_3m_1 = A_2N_2$, $A_3n_1 = A_2N_3$; (k_2) intersects A_2A_1 in two points ℓ_2, n_2 such that $A_1\ell_2 = A_1N_1$, $A_2n_2 = A_2N_2$.	2°. Circle (k_1) intersects A_2A_3 in two points m_1, n_1 such that $A_2m_1 = A_2N_2$, $A_3n_1 = A_3N_3$. In the same way, (k_2) intersects A_1A_3 in two points ℓ_2, n_2 such that $A_1\ell_2 = A_1N_1$, $A_3n_2 = A_3N_3$, and (k_3) intersects A_1A_2 in two points ℓ_3, m_3 such that $A_1\ell_3 = A_1N_1$, $A_2m_3 = A_2N_2$.
421	5°. A condition for (x_2), (x_3) to be tangent is that this line should be (t_3) itself.	7°. A condition for (x_2), (x_3) to be tangent is that line $O_1\alpha$ coincide with line t_1..

Mark Saul
Center for Mathematical Talent
Courant Institute of Mathematical Sciences
New York University