

## Sacred Mathematics

*Japanese Temple Geometry*

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## Errata

Page 24, line 17: “1713” should read “1723”.

Page 70, third line up:“(see plate 3.9)” should read “(see plate 3.6)”.

Page 71, caption to plate 3.6: “1633” should read “1638”.

Page 97, problem 10, line 3: “four ‘red’ ” should read “seven ‘red’ ”.

Page 106, problem 24, line 4: “Find  $b, d \dots$ ” should read “Find  $t, b, d \dots$ ”.

Page 133, problem 32, line 6: “ $r = \frac{1}{\sin 36^\circ - 1} R$ ” should read “ $r = (\frac{1}{\sin 36^\circ} - 1) R$ ”.

Page 144, plate 5.1: “Also shown (b) is” should read “Also shown on the left is”.

Page 157, caption to plate 5.15: “ $t$ ” should read “ $t_n$ ”.

Page 168, paragraph 4, line 1: “In 1717” should read “In 1802”.

Page 168, paragraph 4, line 6: “(?-?)” should read “(?-1802)”.

Page 175, problem 15: the final two eqs. on the page should be labeled (1) and (2), respectively.

Page 179, problem 20: eq. (1) should read “ $r_3 = \frac{[h(r_1+r_2)-2r_1r_2]^2}{8r_1r_2h}$ ”.

Page 180: second eq. should read “ $r = \frac{[h(r_1+r_2)-2r_1r_2]^2}{8r_1r_2h}$ ”.

Page 180: third eq. should read " $r = \frac{[h(r_2+r_3)-2r_2r_3]^2}{8r_2r_3h}$ ".

Page 184, caption to figure 5.41: " $(r/\sqrt{r^2-x^2})\Delta\Delta x$ " should read " $(r/\sqrt{r^2-x^2})\Delta x$ ".

Page 186: second of eqs. (6) should read " $\frac{S}{4} = \frac{rh}{2\sin\phi_{max}}[1 - \cos\phi_{max}]$ ".

Page 198: problem 7, line 4 should read " $ABC = (\frac{3}{4})\sqrt{3ab}$ ".

Page 250, problem 3: The quantity labeled  $r$  in the figure should be the diameter of the circle. See J. Reyna and D. Clark, "A modern solution to the Gion shrine problem," <https://arxiv.org/abs/1306.5339>

Page 280: We give here a solution to Chapter 7, Problem 10:

The area of the shaded region is

$$S(x) = \frac{1}{2}x\sqrt{r^2-x^2} - \frac{\pi}{4}x^2 + \frac{1}{2}x^2\sin^{-1}\frac{x}{r}.$$

Taking the derivative with respect to  $x$  gives

$$S'(x) = \frac{1}{2}x\sqrt{r^2-x^2} - \frac{\pi}{2}x + x\sin^{-1}\frac{x}{r}.$$

Setting  $S'(x) = 0$  gives  $x \cong \frac{293}{744} \cong 0.393817$ , which in turn gives the maximum for  $S(x)$  as

$$S_{max} = \frac{619}{6834}r^2.$$

Page 280, problem 11: The solution should read " $c = \frac{a(\sqrt{a}+\sqrt{b})^2}{4(3b+\sqrt{ab})}$ ".

Page 291, eq. (3): The denominator of the second term in the brackets should read " $(r_1+r_3)(r_2+r_3)$ ". The same replacement should be made in the denominator of the second term under the radical in the next equation.

Page 333: The equation  $r' = 1/4r$  should be labeled (18).

**To our readers:** Our apologies to anyone who may have sent corrections that do not appear here. Unfortunately, some correspondence may have gone missing since the book

was originally published. Also many thanks to readers who have sent us their solutions to various problems, which due to lack of space we cannot reprint here.