

angles of the triangle to be trisectible, the rational cosine values must meet certain conditions. Using some elementary aspects of the theory of constructible numbers, we obtain several general methods for finding triangles that meet our conditions, then present some examples and explore a few properties of these triangles.

RUSSELL A. GORDON received his Ph.D. from the University of Illinois in 1987, writing his dissertation under the influence of Jerry Uhl. He has been teaching mathematics at Whitman College since then and is becoming increasingly aware that his current students believe that 1987 was a long time ago. Attending a Ke\$ha concert with his teenage son while working on this paper helped convince his students that he is not completely ignorant of twenty-first century pop culture. When not pursuing various mathematical ideas, he enjoys eating his spouse's wonderful vegetarian cooking (for which doing the dishes is a small price to pay), watching movies with his family, and hiking in the local mountains.

Solution to puzzle on page 197:

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----|---|----|---|----|----|----|---|---|----|---|---|---|----|----|----|---|----|----|----|----|----|----|---|----|---|----|---|
| 1 | S | 2 | P | 3 | A | 4 | R | | 5 | A | 6 | N | 7 | A | 8 | S | | 9 | O | 10 | P | 11 | T | 12 | I | 13 | C |
| 14 | O | R | Z | O | | | | | 15 | M | M | X | L | | | | | 16 | H | A | R | P | O | | | | |
| 17 | S | I | T | S | | | | | 18 | T | R | I | A | 19 | N | G | U | L | A | R | | | | | | | |
| 20 | A | M | E | S | 21 | S | | | | | | | 22 | S | P | O | O | L | | | | | | | | | |
| 23 | D | E | C | I | M | 24 | A | L | 25 | | | | 26 | O | R | D | I | 27 | N | A | L | | | | | | |
| | | | | | | | | | 30 | U | T | A | H | N | | | | | | | 32 | E | T | A | | | |
| | | | | | | | | | 33 | B | A | R | R | I | O | | 35 | A | B | R | A | M | S | | | | |
| | | | | | | | | | 38 | P | E | R | F | E | C | T | 39 | S | Q | U | A | R | E | | | | |
| 40 | I | O | D | I | S | E | | | | | | | | 41 | E | T | A | G | E | S | | | | | | | |
| 42 | C | G | I | | | | | | | | | | | 43 | E | P | U | B | S | | | | | | | | |
| 44 | C | O | M | P | L | E | X | | | | | | | 48 | N | A | T | 49 | U | R | A | L | | | | | |
| | | | | | | | | | 53 | H | I | P | P | O | 54 | | | | 55 | O | M | E | G | A | | | |
| 56 | I | 57 | R | 58 | R | A | T | I | O | N | A | L | | | | | | | 61 | A | A | R | P | | | | |
| 62 | S | I | E | G | E | | | | | | | | | 63 | S | T | L | O | | | 64 | S | L | I | P | | |
| 65 | O | D | D | E | R | | | | | | | | | 66 | E | V | E | N | | | 67 | S | S | N | S | | |