

N. Lat. { L.H.A. greater than 180°Zn=Z
 L.H.A. less than 180°Zn=360-Z

DECLINATION (0° - 14°) CONTRARY NAME TO LATITUDE

LAT 25°

| LHA | 0° | | | 1° | | | 2° | | | 3° | | | 4° | | | 5° | | | 6° | | | 7° | | | 8° | | | 9° | | | 10° | | | 11° | | | 12° | | | 13° | | | 14° | | | LHA |
|-----|-------|-----|-----|-------|-----|-----|-------|-----|-----|-------|-----|-----|-------|-----|-----|-------|-----|-----|-------|-----|-----|-------|-----|-----|-------|-----|-----|-------|-----|-----|-------|-----|-----|-------|-----|-----|-------|-----|-----|-------|-----|-----|---------|-----|-----|-----|
| | Hc | d | Z | Hc | d | Z | Hc | d | Z | Hc | d | Z | Hc | d | Z | Hc | d | Z | Hc | d | Z | Hc | d | Z | Hc | d | Z | Hc | d | Z | Hc | d | Z | Hc | d | Z | Hc | d | Z | Hc | d | Z | | | | |
| 69 | 18 57 | -27 | 99 | 18 30 | -27 | 100 | 18 03 | -28 | 101 | 17 35 | -27 | 102 | 17 08 | -28 | 103 | 16 40 | -29 | 104 | 16 11 | -28 | 105 | 15 43 | -29 | 106 | 15 14 | -29 | 107 | 14 45 | -29 | 108 | 14 16 | -29 | 108 | 13 47 | -30 | 109 | 13 17 | -30 | 110 | 12 47 | -29 | 111 | 12 18 | -31 | 112 | 291 |
| 67 | 19 51 | -27 | 100 | 19 24 | -28 | 101 | 18 56 | -27 | 102 | 18 29 | -28 | 103 | 18 01 | -29 | 103 | 17 32 | -28 | 104 | 17 04 | -29 | 105 | 16 35 | -29 | 106 | 16 06 | -29 | 107 | 15 37 | -29 | 108 | 15 08 | -30 | 109 | 14 38 | -30 | 110 | 14 08 | -30 | 111 | 13 38 | -30 | 112 | 13 08 | -31 | 113 | 292 |
| 68 | 20 44 | -27 | 100 | 20 17 | -27 | 101 | 19 50 | -28 | 102 | 19 22 | -29 | 103 | 18 53 | -28 | 104 | 18 25 | -29 | 105 | 17 56 | -29 | 106 | 17 27 | -29 | 107 | 16 58 | -29 | 108 | 16 29 | -30 | 109 | 16 00 | -30 | 110 | 15 29 | -30 | 110 | 14 59 | -30 | 111 | 14 29 | -31 | 112 | 13 58 | -31 | 113 | 293 |
| 65 | 21 38 | -28 | 101 | 21 10 | -27 | 102 | 20 43 | -28 | 103 | 20 15 | -29 | 104 | 19 46 | -28 | 104 | 19 18 | -29 | 105 | 18 49 | -30 | 106 | 18 19 | -29 | 107 | 17 50 | -30 | 108 | 17 20 | -30 | 109 | 16 50 | -30 | 110 | 16 20 | -30 | 111 | 15 50 | -31 | 112 | 15 19 | -31 | 113 | 14 48 | -31 | 114 | 294 |
| 66 | 22 31 | -28 | 101 | 22 04 | -28 | 102 | 21 36 | -29 | 103 | 21 07 | -28 | 104 | 20 39 | -29 | 105 | 20 10 | -29 | 106 | 19 41 | -30 | 107 | 19 11 | -29 | 108 | 18 42 | -31 | 109 | 18 11 | -30 | 110 | 17 41 | -31 | 110 | 17 11 | -31 | 111 | 16 40 | -31 | 112 | 16 09 | -31 | 113 | 15 38 | -32 | 114 | 295 |
| 64 | 23 25 | -28 | 102 | 22 57 | -28 | 103 | 22 29 | -29 | 104 | 22 00 | -29 | 105 | 21 31 | -29 | 105 | 21 02 | -29 | 106 | 20 33 | -30 | 107 | 20 03 | -30 | 108 | 19 33 | -30 | 109 | 19 03 | -31 | 110 | 18 32 | -31 | 111 | 18 01 | -31 | 112 | 17 30 | -31 | 113 | 16 59 | -32 | 114 | 16 27 | -31 | 115 | 296 |
| 63 | 24 18 | -28 | 102 | 23 50 | -29 | 103 | 23 21 | -28 | 104 | 22 53 | -29 | 105 | 22 24 | -30 | 106 | 21 54 | -29 | 107 | 21 25 | -30 | 108 | 20 55 | -31 | 109 | 20 24 | -30 | 110 | 19 54 | -31 | 111 | 19 23 | -31 | 112 | 18 52 | -32 | 112 | 18 20 | -31 | 113 | 17 49 | -32 | 114 | 17 17 | -33 | 115 | 297 |
| 62 | 25 11 | -28 | 103 | 24 43 | -29 | 104 | 24 14 | -29 | 105 | 23 45 | -29 | 106 | 23 16 | -30 | 107 | 22 46 | -30 | 108 | 22 16 | -30 | 109 | 21 46 | -31 | 110 | 21 15 | -31 | 111 | 20 44 | -31 | 112 | 19 42 | -32 | 113 | 19 10 | -32 | 114 | 18 38 | -32 | 115 | 18 06 | -33 | 116 | 298 | | | |
| 61 | 26 04 | -29 | 103 | 25 35 | -28 | 104 | 25 07 | -30 | 105 | 24 37 | -29 | 106 | 24 08 | -30 | 107 | 23 38 | -30 | 108 | 23 08 | -31 | 109 | 22 37 | -31 | 110 | 22 06 | -31 | 111 | 21 35 | -31 | 112 | 21 04 | -32 | 113 | 20 32 | -32 | 114 | 20 00 | -33 | 114 | 19 27 | -32 | 115 | 18 55 | -33 | 116 | 299 |
| 60 | 26 57 | -29 | 104 | 26 28 | -29 | 105 | 25 59 | -29 | 106 | 25 30 | -30 | 107 | 25 00 | -30 | 108 | 24 30 | -31 | 109 | 24 00 | -31 | 110 | 23 29 | -31 | 111 | 22 57 | -32 | 112 | 22 25 | -31 | 112 | 21 54 | -33 | 113 | 21 21 | -32 | 114 | 20 49 | -33 | 115 | 20 16 | -33 | 116 | 19 43 | -33 | 117 | 300 |
| 59 | 27 50 | -29 | 104 | 27 21 | -30 | 105 | 26 51 | -29 | 106 | 26 22 | -30 | 107 | 25 52 | -31 | 108 | 25 21 | -31 | 109 | 24 50 | -31 | 110 | 24 19 | -31 | 111 | 23 48 | -32 | 112 | 23 16 | -33 | 113 | 22 43 | -32 | 114 | 22 11 | -33 | 115 | 21 38 | -33 | 116 | 21 05 | -33 | 117 | 20 32 | -34 | 118 | 301 |
| 58 | 28 42 | -29 | 105 | 28 13 | -30 | 106 | 27 43 | -29 | 107 | 27 14 | -31 | 108 | 26 43 | -31 | 109 | 26 12 | -31 | 110 | 25 41 | -31 | 111 | 25 10 | -32 | 112 | 24 38 | -32 | 113 | 24 06 | -33 | 114 | 23 33 | -33 | 115 | 22 57 | -33 | 116 | 22 24 | -34 | 117 | 21 50 | -34 | 118 | 21 20 | -34 | 119 | 302 |
| 57 | 29 35 | -30 | 105 | 29 05 | -30 | 106 | 28 35 | -30 | 107 | 28 05 | -30 | 108 | 27 35 | -31 | 109 | 27 04 | -32 | 110 | 26 32 | -32 | 111 | 26 00 | -32 | 112 | 25 28 | -33 | 113 | 24 55 | -32 | 114 | 24 23 | -34 | 115 | 23 49 | -33 | 116 | 23 16 | -34 | 117 | 22 42 | -34 | 118 | 22 08 | -35 | 119 | 303 |
| 56 | 30 27 | -30 | 106 | 29 57 | -30 | 107 | 29 27 | -30 | 108 | 28 57 | -31 | 109 | 28 26 | -32 | 110 | 27 54 | -31 | 111 | 27 23 | -32 | 112 | 26 50 | -32 | 113 | 26 18 | -33 | 114 | 25 45 | -33 | 115 | 25 12 | -34 | 116 | 24 38 | -34 | 117 | 24 04 | -34 | 118 | 23 30 | -35 | 119 | 23 03 | -35 | 120 | 304 |
| 55 | 31 19 | -30 | 106 | 30 49 | -30 | 107 | 30 19 | -31 | 108 | 29 48 | -31 | 109 | 29 17 | -32 | 110 | 28 45 | -32 | 111 | 28 13 | -32 | 112 | 27 41 | -33 | 113 | 27 08 | -34 | 114 | 26 34 | -33 | 115 | 26 01 | -34 | 116 | 25 27 | -35 | 117 | 24 52 | -34 | 118 | 24 18 | -35 | 119 | 23 43 | -35 | 120 | 305 |
| 54 | 32 11 | -30 | 107 | 31 41 | -31 | 108 | 31 10 | -31 | 109 | 30 39 | -31 | 110 | 30 08 | -32 | 111 | 29 36 | -33 | 112 | 29 03 | -33 | 113 | 28 30 | -33 | 114 | 27 57 | -34 | 115 | 27 23 | -34 | 116 | 26 49 | -34 | 117 | 26 15 | -35 | 118 | 25 40 | -35 | 119 | 25 05 | -35 | 120 | 24 30 | -36 | 121 | 306 |
| 53 | 33 03 | -30 | 108 | 32 33 | -31 | 109 | 32 02 | -32 | 110 | 31 30 | -32 | 111 | 30 58 | -32 | 112 | 30 26 | -33 | 113 | 29 53 | -33 | 114 | 29 20 | -34 | 115 | 28 46 | -34 | 116 | 28 12 | -34 | 117 | 27 38 | -35 | 118 | 27 03 | -35 | 119 | 26 28 | -36 | 120 | 25 52 | -35 | 121 | 25 17 | -37 | 121 | 307 |
| 52 | 33 55 | -31 | 108 | 33 24 | -31 | 109 | 32 53 | -32 | 110 | 32 21 | -32 | 111 | 31 49 | -33 | 112 | 31 16 | -33 | 113 | 30 43 | -34 | 114 | 30 09 | -34 | 115 | 29 35 | -34 | 116 | 29 01 | -35 | 117 | 28 26 | -35 | 118 | 27 51 | -36 | 119 | 27 15 | -36 | 120 | 26 39 | -36 | 121 | 26 03 | -37 | 122 | 308 |
| 51 | 34 47 | -32 | 109 | 34 15 | -31 | 110 | 33 44 | -32 | 111 | 33 12 | -33 | 112 | 32 39 | -33 | 113 | 32 06 | -34 | 114 | 31 32 | -34 | 115 | 30 58 | -34 | 116 | 30 24 | -35 | 117 | 29 49 | -35 | 118 | 29 14 | -36 | 119 | 28 38 | -36 | 120 | 28 02 | -37 | 121 | 27 26 | -37 | 122 | 26 49 | -37 | 123 | 309 |
| 50 | 35 38 | -32 | 110 | 35 06 | -32 | 111 | 34 34 | -32 | 112 | 34 02 | -33 | 113 | 33 29 | -34 | 114 | 32 55 | -34 | 115 | 32 21 | -34 | 116 | 31 47 | -35 | 117 | 31 12 | -35 | 118 | 30 37 | -36 | 119 | 29 25 | -36 | 120 | 28 49 | -37 | 121 | 28 12 | -37 | 122 | 27 35 | -38 | 123 | 27 05 | -38 | 124 | 310 |
| 49 | 36 29 | -32 | 111 | 35 57 | -32 | 112 | 35 25 | -33 | 113 | 34 52 | -33 | 114 | 34 19 | -34 | 115 | 33 45 | -35 | 116 | 33 10 | -34 | 116 | 32 36 | -36 | 117 | 32 00 | -36 | 118 | 31 25 | -36 | 119 | 30 49 | -37 | 120 | 30 12 | -37 | 121 | 29 35 | -37 | 122 | 28 58 | -38 | 123 | 28 20 | -38 | 124 | 311 |
| 48 | 37 20 | -32 | 111 | 36 48 | -33 | 112 | 36 15 | -33 | 113 | 35 42 | -34 | 114 | 35 08 | -34 | 115 | 34 34 | -35 | 116 | 33 59 | -35 | 117 | 33 24 | -36 | 118 | 32 48 | -36 | 119 | 32 12 | -37 | 120 | 31 35 | -37 | 121 | 30 58 | -37 | 122 | 30 23 | -38 | 123 | 29 05 | -38 | 124 | 312 | | | |
| 47 | 38 11 | -33 | 112 | 37 38 | -33 | 113 | 37 05 | -34 | 114 | 36 31 | -34 | 115 | 35 57 | -35 | 116 | 35 47 | -35 | 117 | 34 47 | -36 | 118 | 34 12 | -37 | 119 | 33 35 | -36 | 120 | 32 59 | -37 | 121 | 32 22 | -37 | 122 | 31 45 | -38 | 123 | 31 07 | -38 | 124 | 30 29 | -39 | 125 | 313 | | | |
| 46 | 39 01 | -33 | 112 | 38 28 | -33 | 113 | 37 55 | -34 | 114 | 37 21 | -35 | 115 | 36 46 | -35 | 116 | 36 11 | -36 | 117 | 35 35 | -36 | 118 | 34 59 | -36 | 119 | 34 23 | -37 | 120 | 33 46 | -38 | 121 | 32 30 | -38 | 122 | 31 52 | -39 | 123 | 31 13 | -39 | 124 | 30 34 | -39 | 125 | 314 | | | |
| 45 | 39 51 | -33 | 113 | 39 18 | -34 | 114 | 38 44 | -34 | 115 | 38 10 | -35 | 116 | 37 35 | -36 | 117 | 36 59 | -36 | 118 | 36 23 | -37 | 119 | 35 46 | -37 | 120 | 35 09 | -37 | 121 | 34 32 | -38 | 122 | 33 54 | -38 | 123 | 33 16 | -39 | 124 | 32 37 | -39 | 125 | 31 58 | -40 | 126 | 31 18 | -40 | 127 | 315 |
| 44 | 40 41 | -33 | 114 | 40 08 | -35 | 115 | 39 33 | -35 | 116 | 38 58 | -35 | 117 | 38 23 | -36 | 118 | 37 47 | -37 | 119 | 37 10 | -37 | 120 | 36 33 | -37 | 121 | 35 56 | -38 | 122 | 35 18 | -39 | 123 | 34 39 | -38 | 124 | 34 01 | -40 | 125 | 33 21 | -39 | 126 | 32 42 | -40 | 127 | 32 02 | -41 | 128 | 316 |
| 43 | 41 31 | -34 | 114 | 40 57 | -35 | 115 | 40 22 | -35 | 116 | 39 47 | -36 | 118 | 39 34 | -37 | 119 | 38 34 | -37 | 120 | 37 57 | -37 | 121 | 37 30 | -38 | 122 | 36 42 | -38 | 123 | 36 03 | -39 | 124 | 35 24 | -39 | 125 | 34 45 | -40 | 126 | 33 25 | -40 | 127 | 32 45 | -41 | 128 | 317 | | | |
| 42 | 42 20 | -34 | 115 | 41 46 | -36 | 116 | 41 10 | -35 | 117 | 40 35 | -37 | 118 | 39 58 | -37 | 119 | 39 21 | -37 | 120 | 38 44 | -38 | 121 | 38 44 | -38 | 122 | 38 06 | -39 | 123 | 37 27 | -39 | 124 | 36 48 | -39 | 125 | 36 09 | -40 | 126 | 35 29 | -40 | 127 | 34 08 | -41 | 128 | 33 27 | -41 | 129 | 318 |
| 41 | 43 09 | -35 | 116 | 42 34 | -36 | 117 | 41 59 | -37 | 118 | 41 22 | -37 | 119 | 40 45 | -37 | 120 | 40 08 | -38 | 121 | 39 30 | -39 | 122 | 38 51 | -38 | 123 | 38 13 | -40 | 124 | 37 33 | -40 | 125 | 36 53 | -40 | 126 | 36 13 | -41 | 127 | 35 32 | -41 | 128 | 34 01 | -42 | 129 | 33 09 | -42 | 130 | 319 |
| 40 | 43 58 | -35 | 117 | 43 23 | -37 | 118 | 42 46 | -36 | 119 | 42 10 | -38 | 120 | 41 32 | -38 | 121 | 40 54 | -38 | 122 | 40 16 | -39 | 123 | 39 37 | -40 | 124 | 38 57 | -40 | 125 | 38 17 | -40 | 126 | 37 37 | -41 | 127 | 36 56 | -41 | 128 | 36 15 | -42 | 129 | 35 33 | -42 | 130 | 34 51</ | | | |