

KSIĘŻYC

| d | Wsch. | Kulm. | Zach. | A _w | A _z | α | δ | D | F |
|----------------------|-------|-------|-------|----------------|----------------|-------------------|----------|------|-------|
| | λ=0° | | φ=50° | | | 0 ^h UT | | | |
| GRUDZIEŃ 2015 | | | | | | | | | |
| | h m | h m | h m | -° | +° | h m s | ° ' " | ' " | |
| 1 | 22 07 | 4 26 | 11 39 | 107 | 109 | 8 55 13 | 13 35.5 | 30.5 | -0.72 |
| 2 | 23 10 | 5 12 | 12 07 | 101 | 104 | 9 44 41 | 10 36.9 | 30.1 | -0.63 |
| 3 | — | 5 57 | 12 33 | — | 98 | 10 32 03 | 7 15.0 | 29.8 | -0.53 |
| 4 | 0 12 | 6 39 | 12 57 | 95 | 92 | 11 17 55 | 3 38.9 | 29.6 | -0.44 |
| 5 | 1 13 | 7 22 | 13 21 | 89 | 87 | 12 02 58 | -0 03.9 | 29.5 | -0.35 |
| 6 | 2 14 | 8 04 | 13 45 | 83 | 81 | 12 47 55 | -3 45.9 | 29.5 | -0.26 |
| 7 | 3 16 | 8 47 | 14 11 | 78 | 75 | 13 33 25 | -7 20.3 | 29.6 | -0.18 |
| 8 | 4 18 | 9 32 | 14 39 | 72 | 70 | 14 20 05 | -10 39.2 | 29.7 | -0.11 |
| 9 | 5 20 | 10 18 | 15 12 | 67 | 66 | 15 08 22 | -13 34.2 | 29.9 | -0.06 |
| 10 | 6 21 | 11 07 | 15 50 | 64 | 63 | 15 58 34 | -15 56.0 | 30.2 | -0.02 |
| 11 | 7 20 | 11 58 | 16 34 | 61 | 61 | 16 50 43 | -17 35.1 | 30.5 | -0.00 |
| 12 | 8 15 | 12 50 | 17 26 | 60 | 60 | 17 44 34 | -18 22.9 | 30.7 | 0.01 |
| 13 | 9 05 | 13 44 | 18 25 | 61 | 62 | 18 39 34 | -18 13.5 | 31.0 | 0.03 |
| 14 | 9 49 | 14 37 | 19 30 | 64 | 65 | 19 35 03 | -17 04.5 | 31.3 | 0.07 |
| 15 | 10 28 | 15 30 | 20 39 | 68 | 70 | 20 30 23 | -14 58.1 | 31.5 | 0.14 |
| 16 | 11 02 | 16 22 | 21 51 | 74 | 76 | 21 25 08 | -12 00.6 | 31.7 | 0.22 |
| 17 | 11 34 | 17 14 | 23 04 | 80 | 83 | 22 19 11 | -8 21.8 | 31.9 | 0.32 |
| 18 | 12 03 | 18 05 | — | 87 | — | 23 12 45 | -4 13.5 | 32.1 | 0.43 |
| 19 | 12 32 | 18 57 | 0 18 | 94 | 90 | 0 06 14 | 0 10.9 | 32.3 | 0.54 |
| 20 | 13 02 | 19 49 | 1 33 | 101 | 97 | 1 00 11 | 4 36.8 | 32.4 | 0.65 |
| 21 | 13 35 | 20 43 | 2 48 | 107 | 104 | 1 55 08 | 8 48.9 | 32.4 | 0.76 |
| 22 | 14 12 | 21 39 | 4 03 | 113 | 110 | 2 51 26 | 12 31.3 | 32.4 | 0.85 |
| 23 | 14 54 | 22 36 | 5 15 | 117 | 115 | 3 49 07 | 15 28.9 | 32.3 | 0.92 |
| 24 | 15 44 | — | 6 23 | 119 | 118 | 4 47 49 | 17 28.9 | 32.2 | 0.97 |
| 25 | 16 39 | 24 27 | 7 24 | 119 | 119 | 5 46 43 | 18 23.5 | 31.9 | 1.00 |
| 26 | 17 40 | 0 29 | 8 16 | 118 | 118 | 6 44 48 | 18 11.1 | 31.6 | -0.99 |
| 27 | 18 44 | 1 23 | 9 00 | 114 | 116 | 7 41 08 | 16 56.6 | 31.2 | -0.97 |
| 28 | 19 49 | 2 15 | 9 37 | 110 | 112 | 8 35 04 | 14 49.5 | 30.8 | -0.93 |
| 29 | 20 54 | 3 04 | 10 08 | 104 | 107 | 9 26 26 | 12 01.8 | 30.5 | -0.86 |
| 30 | 21 57 | 3 50 | 10 36 | 98 | 101 | 10 15 24 | 8 45.3 | 30.1 | -0.79 |
| 31 | 22 59 | 4 34 | 11 01 | 92 | 95 | 11 02 26 | 5 10.9 | 29.9 | -0.71 |

| | | | | | | | |
|------------------|--------|---------------------------------|--|--------|-------------------|---------|-------|
| ostatnia kwadra: | 3 XII | 7 ^h 40 ^m | | 4 XII | 6.5 ^h | Jowisz | 2°N |
| nów: | 11 XII | 10 ^h 29 ^m | | 6 XII | 2.8 ^h | Mars | 0.1°N |
| pierwsza kwadra: | 18 XII | 15 ^h 14 ^m | | 7 XII | 17.0 ^h | Wenus | 0.7°S |
| pełnia: | 25 XII | 11 ^h 11 ^m | | 10 XII | 14.1 ^h | Saturn | 3°S |
| | | | | 12 XII | 14.2 ^h | Merkury | 7°S |
| | | | | 17 XII | 8.0 ^h | Neptun | 3°S |
| apogeum: | 5 XII | 14 ^h 57 ^m | | 20 XII | 0.9 ^h | Uran | 1°N |
| perygeum: | 21 XII | 8 ^h 54 ^m | | 31 XII | 18.0 ^h | Jowisz | 1.4°N |