Supplementary material

HEPTAGONAL QUASICRYSTALS: CONSTRUCTION OF 2D LATTICES AND DEMONSTRATIONS USING LASER POINTERS – CONCLUDING PART[*]

Vladimir M. Petruševski[1], Sašo M. Kalajdžievski[2]

[1] *Institute of Chemistry, Faculty of Natural Sciences and Mathematics,*
Ss. Cyril & Methodius University in Skopje, Macedonia
[2] *Department of Mathematics, University of Manitoba, Winnipeg, Canada*
vladop@pmf.ukim.mk, sasho.kalajdzievski@umanitoba.ca

The Mathematica program for generation the set of points

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ListPlot[Union[
 {{0, 0}},

 (2/2) Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}],

 (3/3) Table[
  2 Cos[al[7]/
    2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 1, 7}],

 (4/4) Table[(1 + 2*Cos[4*Pi/14]) {Cos[n*al[7]], Sin[n*al[7]]}, {n,
   1, 7}],

 (5/5) Table[(2*Cos[3*Pi/7] +
    2 Cos[Pi/
     7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
   norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 1, 7}],

 (6/6) Table[(1 + 2*Cos[4*Pi/14]) {Cos[n*al[7]], Sin[n*al[7]]}, {n,
   1, 7}] + Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}],

 (6/6) Table[(2*Cos[3*Pi/7] +
    2 Cos[Pi/
     7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
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      norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
         Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 1,
      7}] + Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}],


(6/6) Table[(2*Cos[3*Pi/7] +
      2 Cos[Pi/
       7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
        Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
     norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
         Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 1,
      7}] + Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}],


(7/7) Table[(2*Cos[3*Pi/7] +
      2 Cos[Pi/
       7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
        Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
     norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
         Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
      6}] + Table[
   2 Cos[al[7]/
    2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
       Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}],


(7/7) Table[(1 + 2*Cos[4*Pi/14]) {Cos[n*al[7]], Sin[n*al[7]]}, {n,
    0, 6}] + Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
  Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}],


(7/7) Table[(1 + 2*Cos[4*Pi/14]) {Cos[n*al[7]], Sin[n*al[7]]}, {n,
    0, 6}] + Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
  Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}],


(8/8) Table[(2*Cos[3*Pi/7] +
       2 Cos[Pi/
        7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
         Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
      norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
          Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
      6}] + Table[
   2 Cos[al[7]/
    2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
       Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
  Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}],
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(8/8) Table[(2*Cos[3*Pi/7] +
    2 Cos[Pi/
     7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
   norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
       Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
   6}] + Table[
 2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}],

(8/8)
 Table[(1 + 2*Cos[4*Pi/14]) {Cos[n*al[7]], Sin[n*al[7]]}, {n, 0,
   6}] + Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}],

(9/9) Table[(2*Cos[3*Pi/7] +
    2 Cos[Pi/
     7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
   norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
       Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
   6}] + Table[
 2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}],

(9/9) Table[(2*Cos[3*Pi/7] +
    2 Cos[Pi/
     7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
   norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
       Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
   6}] + Table[
 2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}],

(9/9)
 Table[(1 + 2*Cos[4*Pi/14]) {Cos[n*al[7]], Sin[n*al[7]]}, {n, 0,
  6}] + Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}],

(10/10) Table[(2*Cos[3*Pi/7] +
    2 Cos[Pi/
     7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
   norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
  6}] +
Table[2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}],

(10/10) Table[(2*Cos[3*Pi/7] +
    2 Cos[Pi/
     7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
   norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
  6}] + Table[
 2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}],

(11/11) Table[(2*Cos[3*Pi/7] +
    2 Cos[Pi/
     7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
   norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
  6}] + Table[
 2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[2 Cos[al[7]/

2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
   Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}],

(12/12)
 Table[(1 + 2*Cos[4*Pi/14]) {Cos[n*al[7]], Sin[n*al[7]]}, {n, 0,
   6}] + Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}],

(12/12)
 Table[(1 + 2*Cos[4*Pi/14]) {Cos[n*al[7]], Sin[n*al[7]]}, {n, 0,
   6}] + Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}],

(13/13) Table[(2*Cos[3*Pi/7] +
   2 Cos[Pi/
     7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
   norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
   6}] + Table[
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  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
     Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
 Table[2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
     Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}],

(13/13) Table[(2*Cos[3*Pi/7] +
   2 Cos[Pi/
     7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
   norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
   6}] + Table[
 2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],

Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}],

(14/14) Table[(2*Cos[3*Pi/7] +
   2 Cos[Pi/
    7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
  norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
  6}] + Table[
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  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}],

(14/14) Table[(2*Cos[3*Pi/7] +
   2 Cos[Pi/
    7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
  norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
  6}] + Table[
 2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}],

(14/14) Table[(2*Cos[3*Pi/7] +
   2 Cos[Pi/
    7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/

```
  norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
     Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
  6}] + Table[
 2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}],

(15/15)
 Table[(1 + 2*Cos[4*Pi/14]) {Cos[n*al[7]], Sin[n*al[7]]}, {n, 0,
  6}] + Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}],

(16/16) Table[(2*Cos[3*Pi/7] +
    2 Cos[Pi/
     7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
   norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
  6}] + Table[
 2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}],

(16/16) Table[(2*Cos[3*Pi/7] +
    2 Cos[Pi/
     7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
   norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
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         Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
      6}] + Table[
    2 Cos[al[7]/
      2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
         Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
   Table[2 Cos[al[7]/
      2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
         Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
   Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}] +
   Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}],

(16/16) Table[(2*Cos[3*Pi/7] +
      2 Cos[Pi/
      7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
         Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
      norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
         Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
      6}] + Table[
    2 Cos[al[7]/
      2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
         Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
   Table[2 Cos[al[7]/
      2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
         Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
   Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}] +
   Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
   Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}],

(16/16) Table[(2*Cos[3*Pi/7] +
      2 Cos[Pi/
      7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
         Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
      norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
         Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
      6}] +
   Table[2 Cos[al[7]/
      2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
         Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
   Table[2 Cos[al[7]/
      2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
         Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
   Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}] +
   Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
```

Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}],

(17/17) Table[(2*Cos[3*Pi/7] +
    2 Cos[Pi/
    7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
  norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
  6}] + Table[
 2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
 Table[2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}],

(17/17) Table[(2*Cos[3*Pi/7] +
    2 Cos[Pi/
    7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
  norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
  6}] + Table[
 2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
 Table[2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}],

(17/17)
 Table[(1 + 2*Cos[4*Pi/14]) {Cos[n*al[7]], Sin[n*al[7]]}, {n, 0,
  6}] + Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +

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  Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}],

(18/18) Table[(2*Cos[3*Pi/7] +
     2 Cos[Pi/
       7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
       Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
     norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
       Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
    6}] + Table[
  2 Cos[al[7]/
    2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
  Table[2 Cos[al[7]/
    2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
  Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}] +
  Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}] +
  Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
  Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}],

(18/18) Table[(2*Cos[3*Pi/7] +
     2 Cos[Pi/
       7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
       Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
     norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
       Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
    6}] + Table[
  2 Cos[al[7]/
    2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
  Table[2 Cos[al[7]/
    2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
  Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}] +
  Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
  Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}],

(18/18) Table[(2*Cos[3*Pi/7] +
     2 Cos[Pi/
       7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
       Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
     norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
       Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
```

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 6}] + Table[
 2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
 Table[2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}],

(19/19) Table[(2*Cos[3*Pi/7] +
    2 Cos[Pi/
     7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
     Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
  norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
     Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
  6}] + Table[
 2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
 Table[2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}],

(19/19) Table[(2*Cos[3*Pi/7] +
    2 Cos[Pi/
     7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
     Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
  norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
     Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
  6}] + Table[
 2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
 Table[2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
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Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}],

(19/19)
 Table[(1 + 2*Cos[4*Pi/14]) {Cos[n*al[7]], Sin[n*al[7]]}, {n, 0,
   6}] + Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}],

(19/19)
 Table[(1 + 2*Cos[4*Pi/14]) {Cos[n*al[7]], Sin[n*al[7]]}, {n, 0,
   6}] + Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}],

(20/20) Table[(2*Cos[3*Pi/7] +
    2 Cos[Pi/
     7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
     Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
   norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
   6}] + Table[
 2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +

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   Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
   Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}],

(20/20) Table[(2*Cos[3*Pi/7] +
     2 Cos[Pi/
      7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
       Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
    norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
        Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
    6}] + Table[
  2 Cos[al[7]/
   2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
     Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
 Table[2 Cos[al[7]/
   2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
     Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
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 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}],

(20/20)
 Table[(1 + 2*Cos[4*Pi/14]) {Cos[n*al[7]], Sin[n*al[7]]}, {n, 0,
   6}] + Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
 Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}],

(21/21) Table[(2*Cos[3*Pi/7] +
     2 Cos[Pi/
      7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
       Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
    norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
        Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
    6}] + Table[
  2 Cos[al[7]/
   2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
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       Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
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   2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
     Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}],

(21/21) Table[(2*Cos[3*Pi/7] +
    2 Cos[Pi/
     7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
   norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
  6}] + Table[
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  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
     Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[2 Cos[al[7]/
   2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
     Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}],

(21/21) Table[(2*Cos[3*Pi/7] +
    2 Cos[Pi/
     7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
   norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
  6}] + Table[
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  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
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Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
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Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}],

(21/21) Table[(2*Cos[3*Pi/7] +
    2 Cos[Pi/
     7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
   norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
       Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
   6}] + Table[
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  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}] +
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Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}],

(22/22) Table[(2*Cos[3*Pi/7] +
    2 Cos[Pi/
     7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
      Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
   norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
       Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
   6}] + Table[
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  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +

Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}],

(22/22) Table[(2*Cos[3*Pi/7] +
    2 Cos[Pi/
     7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
     Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
   norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
     Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
   6}] + Table[
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  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}],

(21/21) Table[(2*Cos[3*Pi/7] +
    2 Cos[Pi/
     7])*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
     Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})/
   norm[({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
     Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]})], {n, 0,
   6}] + Table[
 2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[2 Cos[al[7]/
  2]*({{Cos[al[7]/2], -Sin[al[7]/2]}, {Sin[al[7]/2],
    Cos[al[7]/2]}}.{Cos[n*al[7]], Sin[n*al[7]]}), {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 2, 8}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 1, 7}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 0, 6}] +
Table[{Cos[n*al[7]], Sin[n*al[7]]}, {n, 6, 12}]

```
    ],
AspectRatio -> True, Axes -> False,
PlotStyle -> {PointSize[0.02], Black}]
```