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Supplementary material

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

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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]]})/
    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, 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}],

(8/8) Table[(2*Cos[3*Pi/7] +
     2 Cos[Pi/
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      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,
```

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   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)
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 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}],
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(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}],
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(13/13)

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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}],
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(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}],
```

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(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, 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}] +
```

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 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}],
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(15/15)

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  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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(16/16)

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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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(16/16)

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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],
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     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}] +
 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,
   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}] +
 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}] +
 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],
```

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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[{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}] +
 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],
      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, 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],
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      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}] +
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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, 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[
 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}],

(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, 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[
  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}] +
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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, 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[
  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],
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      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}]
```