In[•]:=
```
DeleteDuplicates[FullSimplify[Sort@Abs[√8 #], Assumptions → {φ ∈ Reals, φ > 0}] & /@ listJLΦ]
```

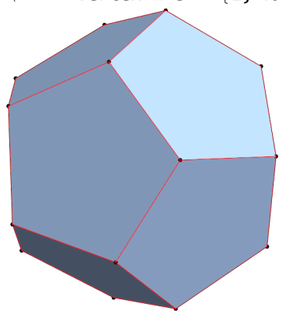
Out[•]=
$$\left\{\{0,0,0,0,0,0,2,2\},\left\{0,0,0,0,1,1,1,\sqrt{5}\right\},\left\{0,0,0,0,\frac{1}{\varphi},\frac{1}{\varphi},\frac{1}{\varphi},\varphi^2\right\},\left\{0,0,0,0,\frac{1}{\varphi^2},\varphi,\varphi,\varphi\right\},\left\{0,0,0,0,0,\sqrt{5},\frac{1}{\varphi},\varphi\right\},\left\{0,0,0,0,1,2,\frac{1}{\varphi},\varphi\right\},\left\{0,0,0,0,0,1,\frac{1}{\varphi^2},\varphi^2\right\}\right\}$$

In[•]:=
```
JLΦ = octSimplify /@ Flatten@prq[prq[octPwrαL, TL, 1], octPwrαLsw, cpL];
Length@%
JLΦRnd = rndOct /@ %%;
listJLΦ = FullSimplify[oct2List[#] & /@ %%%, Assumptions → {φ ∈ Reals, φ > 0}];
listJLΦRnd = oct2List /@ %%;
(**)
hulls3DPerms["listJLΦ", False, , 1]
```

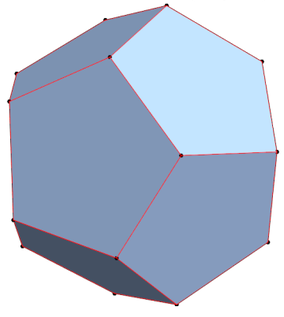
Out[•]=
600

Out[•]=
ListName= listJLΦ
Dims used={1, 2, 3}
tallyList={40, 40, 60, 120}
{120, 120, 40, 60}

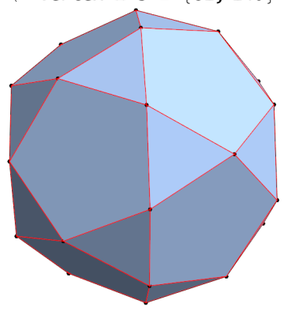
Hull ⌗ = 1
with 40 vertices
of 3D Norm = $\frac{1}{2}\sqrt{\frac{3}{2}}\,\varphi$
= $\frac{1}{4}\sqrt{9-3\sqrt{5}}$
= 0.3785
Vertex ⌗'s = {1, 40}



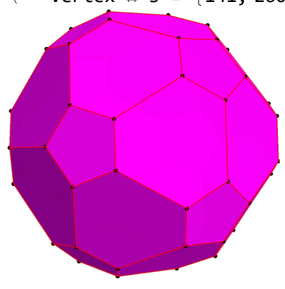
Hull ⌗ = 2
with 40 vertices
of 3D Norm = $\frac{\sqrt{\frac{3}{2}}}{2}$
= $\frac{\sqrt{\frac{3}{2}}}{2}$
= 0.6124
Vertex ⌗'s = {41, 80}



Hull ⌗ = 3
with 60 vertices
of 3D Norm = $\frac{1}{\sqrt{2}}$
= $\frac{1}{\sqrt{2}}$
= 0.7071
Vertex ⌗'s = {81, 140}



Hull ⌗ = 4
with 120 vertices
of 3D Norm = $\sqrt{\frac{1}{4\varphi^2}+\frac{\varphi^4}{8}}$
= $\frac{\sqrt{13-\sqrt{5}}}{4}$
= 0.8202
Vertex ⌗'s = {141, 260}



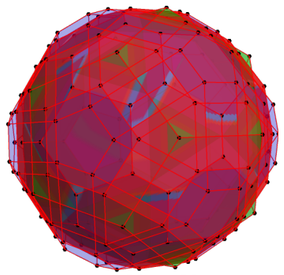
Hull ⌗ = 5
with 120 vertices
of 3D Norm = $\frac{\sqrt{\frac{7}{2}}}{2}$
= $\frac{\sqrt{\frac{7}{2}}}{2}$
= 0.9354
Vertex ⌗'s = {261, 380}

Hull ⌗ = 6
with 120 vertices
of 3D Norm = $\sqrt{\frac{1}{8\varphi^4}+\frac{\varphi^2}{4}}$
= $\frac{\sqrt{13+\sqrt{5}}}{4}$
= 0.9758
Vertex ⌗'s = {381, 500}

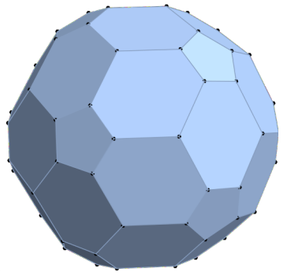
Hull ⌗ = 7
with 40 vertices
of 3D Norm = $\frac{\sqrt{\frac{3}{2}}}{2\,\varphi}$
= $\frac{1}{8}\left(\sqrt{6}+\sqrt{30}\right)$
= 0.9908
Vertex ⌗'s = {501, 540}

Hull ⌗ = 8
with 60 vertices
of 3D Norm = 1
= 1
= 1.
Vertex ⌗'s = {541, 600}

Combined Hulls=



Overall Hull=



In[ ]:=

```
tally3 = Sort@Tally[{tmp = Sort@rndMat[ √8 Abs@# /. φ → 1/2 (-1. + √5)];
        octSym[tmp] /. φ → 1/φ, tmp} & /@ listJL⧆[[All, ;; 4]], #1[[2]] == #2[[2]] &];
{Column[{Row@{#[[1, 1]], "/ √8 "}, #[[1, 2]] / √8}, Center], #[[2]]} & /@ tally3;
% // MatrixForm
```

Out[ ]//MatrixForm=

$$\begin{pmatrix} \{0, 0, 2, 2\}/\sqrt{8} \\ \{0, 0, 0.707107, 0.707107\} & 24 \\ \left\{0, \frac{1}{\varphi^2}, 1, \varphi^2\right\}/\sqrt{8} \\ \{0, 0.135057, 0.353553, 0.925603\} & 96 \\ \left\{0, \frac{1}{\varphi}, \varphi, \sqrt{5}\right\}/\sqrt{8} \\ \{0, 0.218496, 0.572049, 0.790581\} & 96 \\ \left\{1, 1, 1, \sqrt{5}\right\}/\sqrt{8} \\ \{0.353553, 0.353553, 0.353553, 0.790581\} & 64 \\ \left\{\frac{1}{\varphi^2}, \varphi, \varphi, \varphi\right\}/\sqrt{8} \\ \{0.135057, 0.572049, 0.572049, 0.572049\} & 64 \\ \left\{\frac{1}{\varphi}, 1, \varphi, 2\right\}/\sqrt{8} \\ \{0.218496, 0.353553, 0.572049, 0.707107\} & 192 \\ \left\{\frac{1}{\varphi}, \frac{1}{\varphi}, \frac{1}{\varphi}, \varphi^2\right\}/\sqrt{8} \\ \{0.218496, 0.218496, 0.218496, 0.925603\} & 64 \end{pmatrix}$$

In[•]:=

```
diminishedJ⊕Inv3 = Select[listJL⊕,
    FullSimplify[Sort@Abs[√8 #], Assumptions → {φ ∈ Reals, φ > 0}] == {0, 0, 0, 0, 0, 0, 2, 2} ||
      FullSimplify[Sort@Abs[√8 #], Assumptions → {φ ∈ Reals, φ > 0}] == {0, 0, 0, 0, 0, 1, 1/φ^2, φ^2} &];
Length@%
hulls3DPerms["diminishedJ⊕Inv3", False, , 1]
```

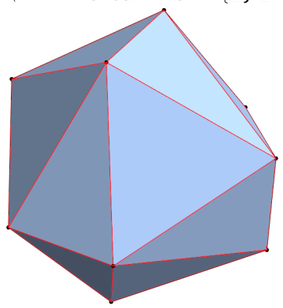
Out[•]=

```
120
```

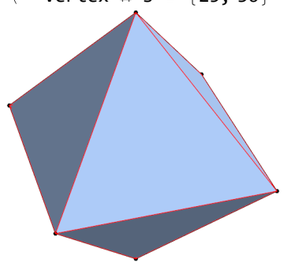
Out[•]=

```
ListName= diminishedJ⊕Inv3
Dims used={1, 2, 3}
tallyList={24, 12, 24, 24}
          {36}
```

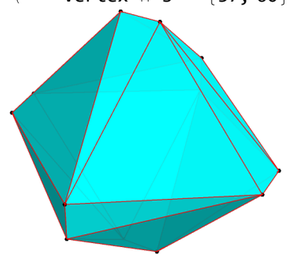
Hull ⌗ = 1
with 24 vertices
of 3D Norm = $\sqrt{\frac{1}{8}+\frac{\varphi^4}{8}}$
= $\frac{1}{4}\sqrt{9-3\sqrt{5}}$
= 0.3785
Vertex ⌗'s = {1, 24}



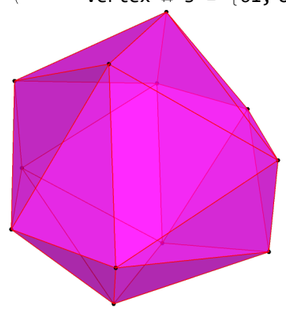
Hull ⌗ = 2
with 12 vertices
of 3D Norm = $\frac{1}{\sqrt{2}}$
= $\frac{1}{\sqrt{2}}$
= 0.7071
Vertex ⌗'s = {25, 36}



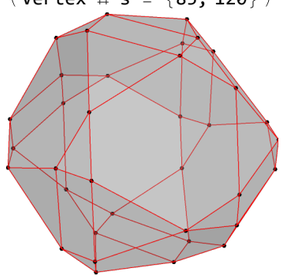
Hull ⌗ = 3
with 24 vertices
of 3D Norm = $\sqrt{\frac{1}{8\,\varphi^4}+\frac{\varphi^4}{8}}$
= $\frac{\sqrt{\frac{7}{2}}}{2}$
= 0.9354
Vertex ⌗'s = {37, 60}



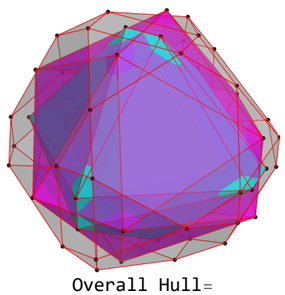
Hull ⌗ = 4
with 24 vertices
of 3D Norm = $\sqrt{\frac{1}{8}+\frac{1}{8\,\varphi^4}}$
= $\frac{1}{4}\sqrt{3\left(3+\sqrt{5}\right)}$
= 0.9908
Vertex ⌗'s = {61, 84}



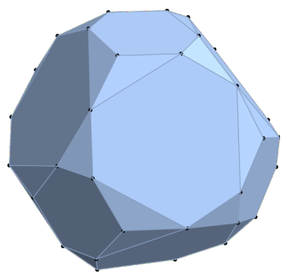
Hull ⌗ = 5
with 36 vertices
of 3D Norm = 1
= 1
= 1.
Vertex ⌗'s = {85, 120}



Combined Hulls=



Overall Hull=



In[•]:=
```
diminishedJ⧼3 = Select[listJL⧼, ! MemberQ[diminishedJ⧼Inv3, #] &];
Length@%
hulls3DPerms["diminishedJ⧼3", False, , 1]
```

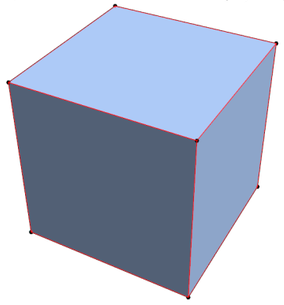
Out[•]//MatrixForm=

$\{0, 0, 2, 2\}/\sqrt{8}$	24
$\{0, 0, 0.707107, 0.707107\}$	
$\left\{0, \frac{1}{\varphi^2}, 1, \varphi^2\right\}/\sqrt{8}$	96
$\{0, 0.135057, 0.353553, 0.925603\}$	
$\left\{0, \frac{1}{\varphi}, \varphi, \sqrt{5}\right\}/\sqrt{8}$	96
$\{0, 0.218496, 0.572049, 0.790581\}$	
$\left\{1, 1, 1, \sqrt{5}\right\}/\sqrt{8}$	64
$\{0.353553, 0.353553, 0.353553, 0.790581\}$	
$\left\{\frac{1}{\varphi^2}, \varphi, \varphi, \varphi\right\}/\sqrt{8}$	64
$\{0.135057, 0.572049, 0.572049, 0.572049\}$	
$\left\{\frac{1}{\varphi}, 1, \varphi, 2\right\}/\sqrt{8}$	192
$\{0.218496, 0.353553, 0.572049, 0.707107\}$	
$\left\{\frac{1}{\varphi}, \frac{1}{\varphi}, \frac{1}{\varphi}, \varphi^2\right\}/\sqrt{8}$	64
$\{0.218496, 0.218496, 0.218496, 0.925603\}$	

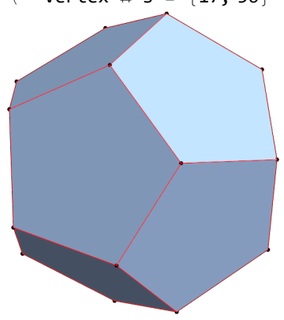
Out[•]=
```
480
```

Out[•]=
```
ListName= diminishedJ⧼3
Dims used={1, 2, 3}
tallyList={16, 40, 48, 120}
          {96, 120, 16, 24}
```

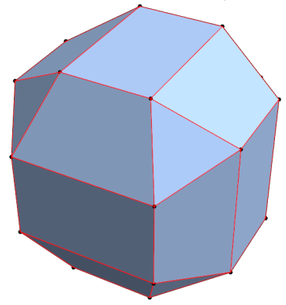
Hull ⌗ = 1
with 16 vertices
of 3D Norm = $\frac{1}{2}\sqrt{\frac{3}{2}}\,\varphi$ = $\frac{1}{4}\sqrt{9-3\sqrt{5}}$ = 0.3785
Vertex ⌗'s = {1, 16}



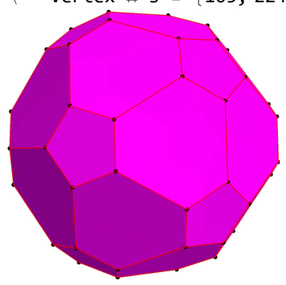
Hull ⌗ = 2
with 40 vertices
of 3D Norm = $\frac{\sqrt{\frac{3}{2}}}{2}$ = $\frac{\sqrt{\frac{3}{2}}}{2}$ = 0.6124
Vertex ⌗'s = {17, 56}



Hull ⌗ = 3
with 48 vertices
of 3D Norm = $\sqrt{\frac{1}{8}+\frac{1}{8\varphi^2}+\frac{\varphi^2}{8}}$ = $\frac{1}{\sqrt{2}}$ = 0.7071
Vertex ⌗'s = {57, 104}



Hull ⌗ = 4
with 120 vertices
of 3D Norm = $\sqrt{\frac{1}{4\varphi^2}+\frac{\varphi^4}{8}}$ = $\frac{\sqrt{13-\sqrt{5}}}{4}$ = 0.8202
Vertex ⌗'s = {105, 224}

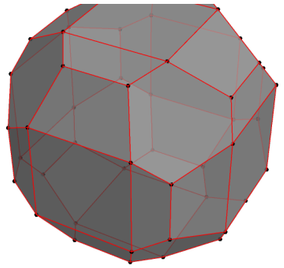


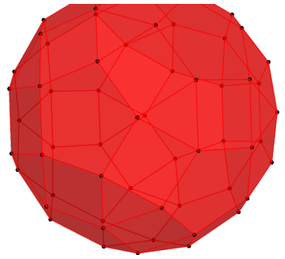
Hull ⌗ = 5
with 96 vertices
of 3D Norm = $\frac{\sqrt{\frac{7}{2}}}{2}$ = $\frac{\sqrt{\frac{7}{2}}}{2}$ = 0.9354
Vertex ⌗'s = {225, 320}

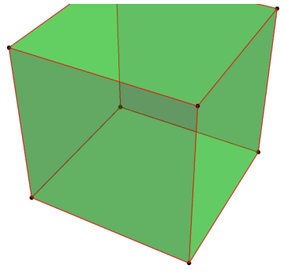
Hull ⌗ = 6
with 120 vertices
of 3D Norm = $\sqrt{\frac{1}{8\varphi^4}+\frac{\varphi^2}{4}}$ = $\frac{\sqrt{13+\sqrt{5}}}{4}$ = 0.9758
Vertex ⌗'s = {321, 440}

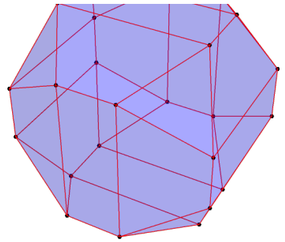
Hull ⌗ = 7
with 16 vertices
of 3D Norm = $\frac{\sqrt{\frac{3}{2}}}{2\varphi}$ = $\frac{1}{8}\left(\sqrt{6}+\sqrt{30}\right)$ = 0.9908
Vertex ⌗'s = {441, 456}

Hull ⌗ = 8
with 24 vertices
of 3D Norm = $\sqrt{\frac{5}{8}+\frac{1}{8\varphi^2}+\frac{\varphi^2}{8}}$ = 1 = 1.
Vertex ⌗'s = {457, 480}

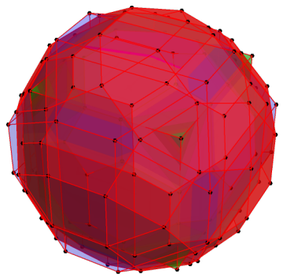




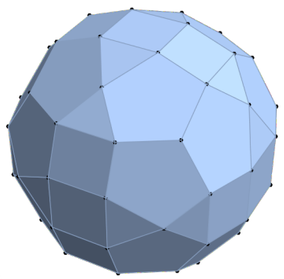




Combined Hulls=



Overall Hull=



In[•]:=

```
diminishedJ⊕Inv4 = Select[listJL⊕,
    FullSimplify[Sort@Abs[√8 #], Assumptions → {φ ∈ Reals, φ > 0}] == {0, 0, 0, 0, 0, 0, 2, 2} ||
      FullSimplify[Sort@Abs[√8 #], Assumptions → {φ ∈ Reals, φ > 0}] == {0, 0, 0, 0, 0, √5, 1/φ, φ} &];
Length@%
hulls3DPerms["diminishedJ⊕Inv4", False, , 1]
```

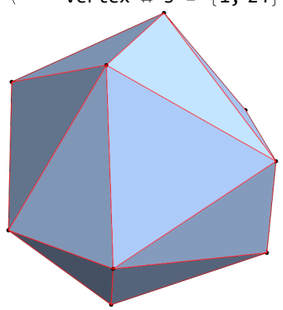
Out[•]=

```
120
```

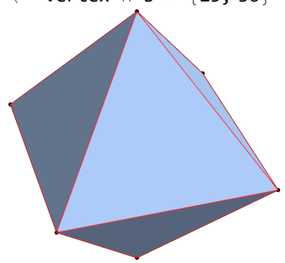
Out[•]=

```
ListName= diminishedJ⊕Inv4
Dims used={1, 2, 3}
tallyList={24, 12, 24, 24}
          {36}
```

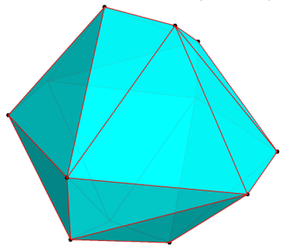
Hull ⌗ = 1
with 24 vertices
of 3D Norm = $\sqrt{\frac{1}{8\varphi^2}+\frac{\varphi^2}{8}}$ = $\frac{\sqrt{\frac{3}{2}}}{2}$ = 0.6124
Vertex ⌗'s = {1, 24}



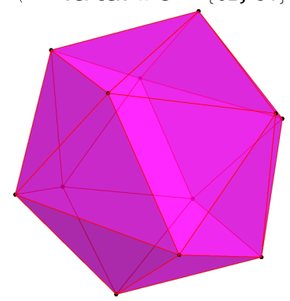
Hull ⌗ = 2
with 12 vertices
of 3D Norm = $\frac{1}{\sqrt{2}}$ = $\frac{1}{\sqrt{2}}$ = 0.7071
Vertex ⌗'s = {25, 36}



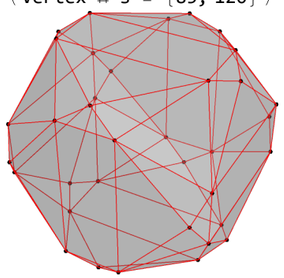
Hull ⌗ = 3
with 24 vertices
of 3D Norm = $\sqrt{\frac{5}{8}+\frac{\varphi^2}{8}}$ = $\frac{\sqrt{13-\sqrt{5}}}{4}$ = 0.8202
Vertex ⌗'s = {37, 60}



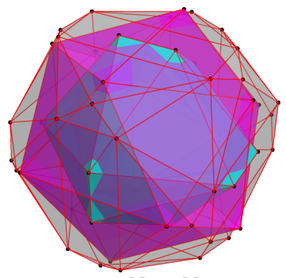
Hull ⌗ = 4
with 24 vertices
of 3D Norm = $\sqrt{\frac{5}{8}+\frac{1}{8\varphi^2}}$ = $\frac{\sqrt{13+\sqrt{5}}}{4}$ = 0.9758
Vertex ⌗'s = {61, 84}



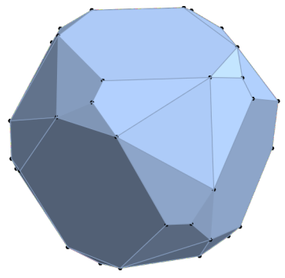
Hull ⌗ = 5
with 36 vertices
of 3D Norm = 1 = 1 = 1.
Vertex ⌗'s = {85, 120}



Combined Hulls=



Overall Hull=

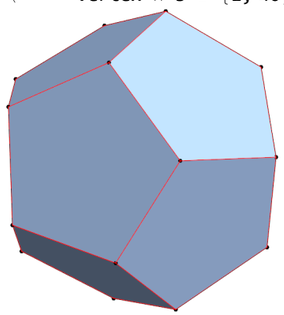


In[•]:=
```
diminishedJ⧈4 = Select[listJL⧈, ! MemberQ[diminishedJ⧈Inv4, #] &];
Length@%
hulls3DPerms["diminishedJ⧈4", False, , 1]
```

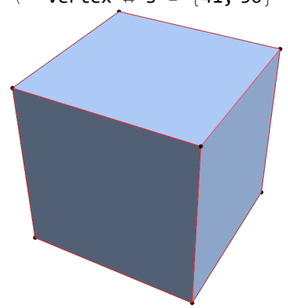
Out[•]=
```
480
```

Out[•]=
```
ListName= diminishedJ⧈4
Dims used={1, 2, 3}
tallyList={40, 16, 48, 96}
          {120, 96, 40, 24}
```

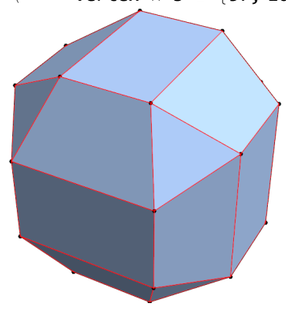
Hull ⌗ = 1
with 40 vertices
of 3D Norm = $\frac{1}{2}\sqrt{\frac{3}{2}}\,\varphi$ = $\frac{1}{4}\sqrt{9-3\sqrt{5}}$ = 0.3785
Vertex ⌗'s = {1, 40}



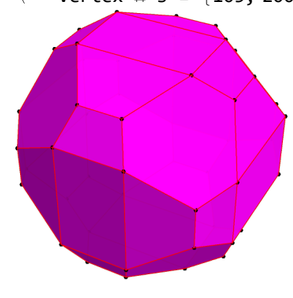
Hull ⌗ = 2
with 16 vertices
of 3D Norm = $\frac{\sqrt{\frac{3}{2}}}{2}$ = $\frac{\sqrt{\frac{3}{2}}}{2}$ = 0.6124
Vertex ⌗'s = {41, 56}



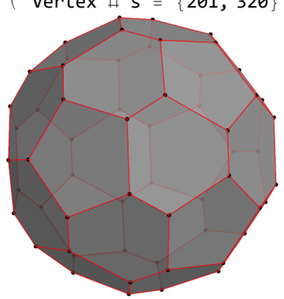
Hull ⌗ = 3
with 48 vertices
of 3D Norm = $\sqrt{\frac{1}{8}+\frac{1}{8\,\varphi^2}+\frac{\varphi^2}{8}}$ = $\frac{1}{\sqrt{2}}$ = 0.7071
Vertex ⌗'s = {57, 104}



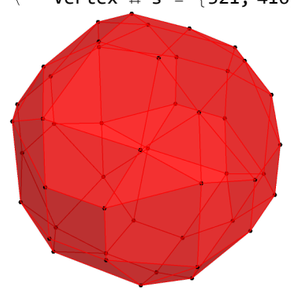
Hull ⌗ = 4
with 96 vertices
of 3D Norm = $\sqrt{\frac{1}{4\,\varphi^2}+\frac{\varphi^4}{8}}$ = $\frac{\sqrt{13-\sqrt{5}}}{4}$ = 0.8202
Vertex ⌗'s = {105, 200}



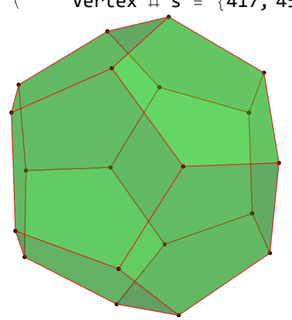
Hull ⌗ = 5
with 120 vertices
of 3D Norm = $\frac{\sqrt{\frac{7}{2}}}{2}$ = $\frac{\sqrt{\frac{7}{2}}}{2}$ = 0.9354
Vertex ⌗'s = {201, 320}



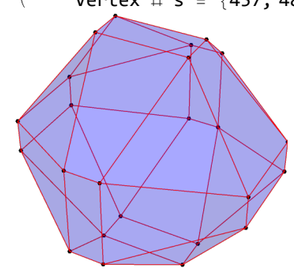
Hull ⌗ = 6
with 96 vertices
of 3D Norm = $\sqrt{\frac{1}{8\,\varphi^4}+\frac{\varphi^2}{4}}$ = $\frac{\sqrt{13+\sqrt{5}}}{4}$ = 0.9758
Vertex ⌗'s = {321, 416}



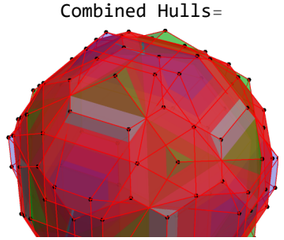
Hull ⌗ = 7
with 40 vertices
of 3D Norm = $\frac{\sqrt{\frac{3}{2}}}{2\,\varphi}$ = $\frac{1}{8}\left(\sqrt{6}+\sqrt{30}\right)$ = 0.9908
Vertex ⌗'s = {417, 456}



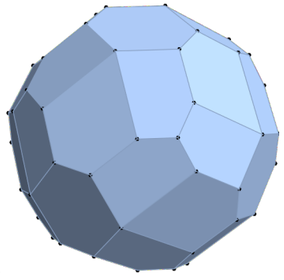
Hull ⌗ = 8
with 24 vertices
of 3D Norm = $\sqrt{\frac{1}{8}+\frac{1}{8\,\varphi^4}+\frac{\varphi^4}{8}}$ = 1 = 1.
Vertex ⌗'s = {457, 480}



Combined Hulls=



Overall Hull=



In[•]:=

```
diminishedJ⊕Inv5 = Select[listJL⊕,
  (*)FullSimplify[Sort@Abs[√8 #],Assumptions→{φ∈Reals,φ>0}]=={0,0,0,0,0,0,2,2}||**)
  FullSimplify[Sort@Abs[√8 #], Assumptions → {φ ∈ Reals, φ > 0}] == {0, 0, 0, 0, 1, 2, 1/φ, φ} &];
Length@%
hulls3DPerms["diminishedJ⊕Inv5", False, , 1]
```

Out[•]=

192

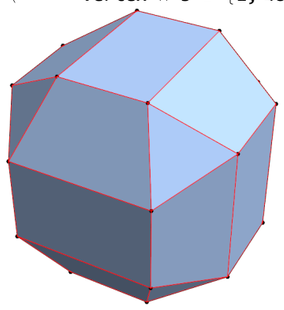
Out[•]=

ListName= diminishedJ⊕Inv5

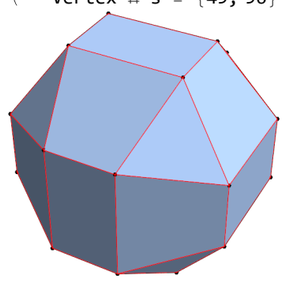
Dims used={1, 2, 3}

tallyList={48, 48, 48, 48}

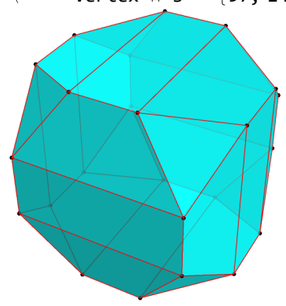
Hull ⌗ = 1
with 48 vertices
of 3D Norm = $\sqrt{\frac{1}{8}+\frac{1}{8\varphi^2}+\frac{\varphi^2}{8}}$ = $\frac{1}{\sqrt{2}}$ = 0.7071
Vertex ⌗'s = {1, 48}



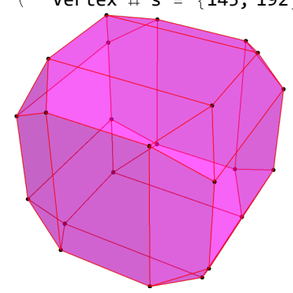
Hull ⌗ = 2
with 48 vertices
of 3D Norm = $\sqrt{\frac{5}{8}+\frac{\varphi^2}{8}}$ = $\frac{\sqrt{13-\sqrt{5}}}{4}$ = 0.8202
Vertex ⌗'s = {49, 96}



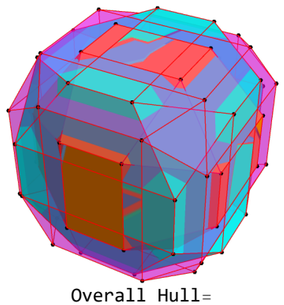
Hull ⌗ = 3
with 48 vertices
of 3D Norm = $\sqrt{\frac{1}{2}+\frac{1}{8\varphi^2}+\frac{\varphi^2}{8}}$ = $\frac{\sqrt{\frac{7}{2}}}{2}$ = 0.9354
Vertex ⌗'s = {97, 144}



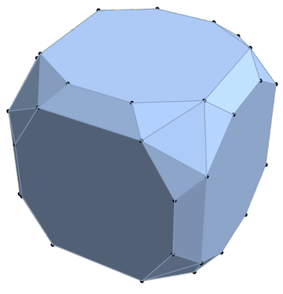
Hull ⌗ = 4
with 48 vertices
of 3D Norm = $\sqrt{\frac{5}{8}+\frac{1}{8\varphi^2}}$ = $\frac{\sqrt{13+\sqrt{5}}}{4}$ = 0.9758
Vertex ⌗'s = {145, 192}



Combined Hulls=



Overall Hull=

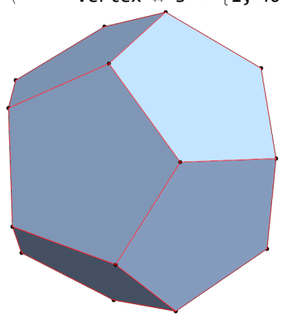


In[•]:=
```
diminishedJ℗5 = Select[listJL℗, ! MemberQ[diminishedJ℗Inv5, #] &];
Length@%
hulls3DPerms["diminishedJ℗5", False, , 1]
```

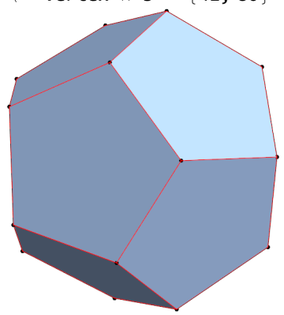
Out[•]=
```
408
```

Out[•]=
```
ListName= diminishedJ℗5
Dims used={1, 2, 3}
tallyList={40, 40, 12, 72}
          {72, 72, 40, 60}
```

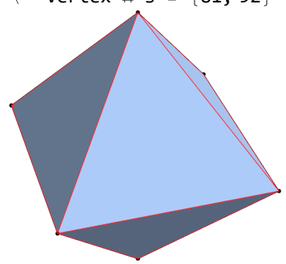
Hull ⌗ = 1
with 40 vertices
of 3D Norm = $\frac{1}{2}\sqrt{\frac{3}{2}}\,\varphi$
= $\frac{1}{4}\sqrt{9-3\sqrt{5}}$
= 0.3785
Vertex ⌗'s = {1, 40}



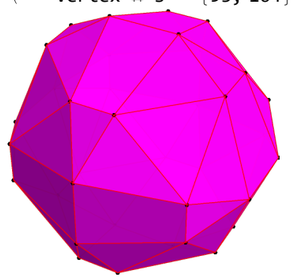
Hull ⌗ = 2
with 40 vertices
of 3D Norm = $\frac{\sqrt{\frac{3}{2}}}{2}$
= $\frac{\sqrt{\frac{3}{2}}}{2}$
= 0.6124
Vertex ⌗'s = {41, 80}



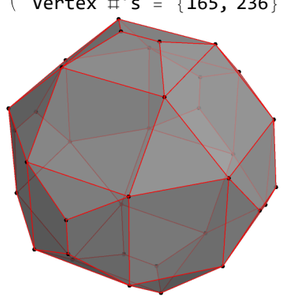
Hull ⌗ = 3
with 12 vertices
of 3D Norm = $\frac{1}{\sqrt{2}}$
= $\frac{1}{\sqrt{2}}$
= 0.7071
Vertex ⌗'s = {81, 92}



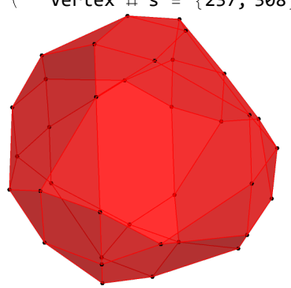
Hull ⌗ = 4
with 72 vertices
of 3D Norm = $\sqrt{\frac{1}{4\,\varphi^2}+\frac{\varphi^4}{8}}$
= $\frac{\sqrt{13-\sqrt{5}}}{4}$
= 0.8202
Vertex ⌗'s = {93, 164}



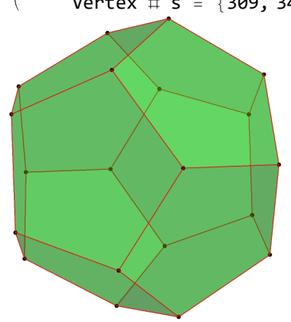
Hull ⌗ = 5
with 72 vertices
of 3D Norm = $\frac{\sqrt{\frac{7}{2}}}{2}$
= $\frac{\sqrt{\frac{7}{2}}}{2}$
= 0.9354
Vertex ⌗'s = {165, 236}



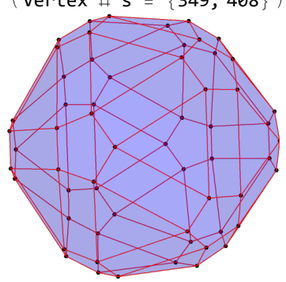
Hull ⌗ = 6
with 72 vertices
of 3D Norm = $\sqrt{\frac{1}{8\,\varphi^4}+\frac{\varphi^2}{4}}$
= $\frac{\sqrt{13+\sqrt{5}}}{4}$
= 0.9758
Vertex ⌗'s = {237, 308}



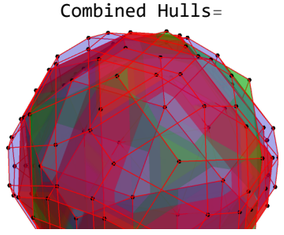
Hull ⌗ = 7
with 40 vertices
of 3D Norm = $\frac{\sqrt{\frac{3}{2}}}{2\,\varphi}$
= $\frac{1}{8}\left(\sqrt{6}+\sqrt{30}\right)$
= 0.9908
Vertex ⌗'s = {309, 348}

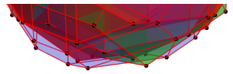


Hull ⌗ = 8
with 60 vertices
of 3D Norm = 1
= 1
= 1.
Vertex ⌗'s = {349, 408}

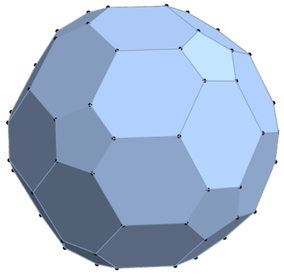


Combined Hulls=





Overall Hull=



In[•]:=

```
diminishedJ⧆Inv6 = Select[listJL⧆,
    (*)FullSimplify[Sort@Abs[ √8 #],Assumptions→{φ∈Reals,φ>0}]=={0,0,0,0,0,0,2,2}||**)
    FullSimplify[Sort@Abs[ √8 #], Assumptions → {φ ∈ Reals, φ > 0}] == {0, 0, 0, 0, 1, 1, 1, √5} ||
      FullSimplify[Sort@Abs[ √8 #], Assumptions → {φ ∈ Reals, φ > 0}] == {0, 0, 0, 0, 1/φ, 1/φ, 1/φ, φ^2} ||
      FullSimplify[Sort@Abs[ √8 #], Assumptions → {φ ∈ Reals, φ > 0}] == {0, 0, 0, 0, 1/φ^2, φ, φ, φ} &];
Length@%
hulls3DPerms["diminishedJ⧆Inv6", False, , 1]
```

Out[•]=

192

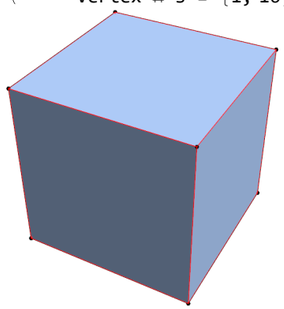
Out[•]=

ListName= diminishedJ⧆Inv6

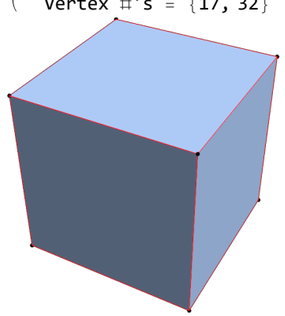
Dims used={1, 2, 3}

tallyList={16, 16, 48, 48}
{48, 16}

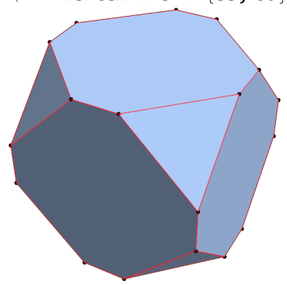
Hull ⌗ = 1
with 16 vertices
of 3D Norm = $\frac{1}{2}\sqrt{\frac{3}{2}}\,\varphi$
= $\frac{1}{4}\sqrt{9-3\sqrt{5}}$
= 0.3785
Vertex ⌗'s = {1, 16}



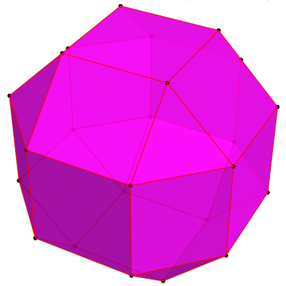
Hull ⌗ = 2
with 16 vertices
of 3D Norm = $\frac{\sqrt{\frac{3}{2}}}{2}$
= $\frac{\sqrt{\frac{3}{2}}}{2}$
= 0.6124
Vertex ⌗'s = {17, 32}



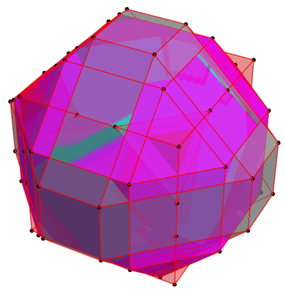
Hull ⌗ = 3
with 48 vertices
of 3D Norm = $\sqrt{\frac{1}{4\,\varphi^2}+\frac{\varphi^4}{8}}$
= $\frac{\sqrt{13-\sqrt{5}}}{4}$
= 0.8202
Vertex ⌗'s = {33, 80}



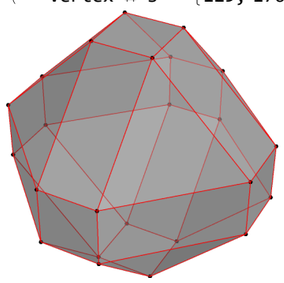
Hull ⌗ = 4
with 48 vertices
of 3D Norm = $\frac{\sqrt{\frac{7}{2}}}{2}$
= $\frac{\sqrt{\frac{7}{2}}}{2}$
= 0.9354
Vertex ⌗'s = {81, 128}



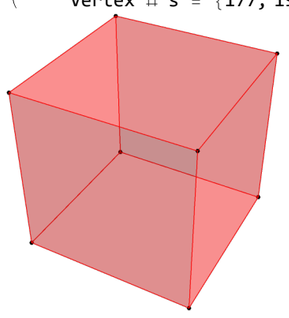
Combined Hulls=



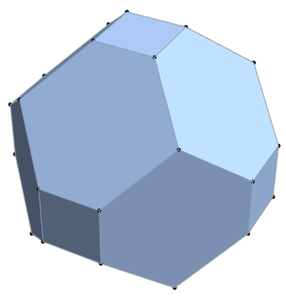
Hull ⌗ = 5
with 48 vertices
of 3D Norm = $\sqrt{\frac{1}{8\,\varphi^4}+\frac{\varphi^2}{4}}$
= $\frac{\sqrt{13+\sqrt{5}}}{4}$
= 0.9758
Vertex ⌗'s = {129, 176}



Hull ⌗ = 6
with 16 vertices
of 3D Norm = $\frac{\sqrt{\frac{3}{2}}}{2\,\varphi}$
= $\frac{1}{8}\left(\sqrt{6}+\sqrt{30}\right)$
= 0.9908
Vertex ⌗'s = {177, 192}



Overall Hull=



In[•]:=

```
diminishedJ⧆6 = Select[listJL⧆, ! MemberQ[diminishedJ⧆Inv6, #] &];
Length@%
hulls3DPerms["diminishedJ⧆6", False, , 1]
```

Out[•]=

408

Out[•]=

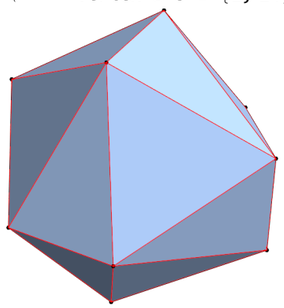
ListName= diminishedJ⧆6

Dims used={1, 2, 3}

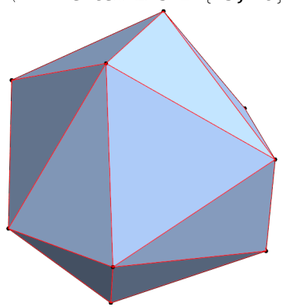
tallyList={24, 24, 60, 72}

{72, 72, 24, 60}

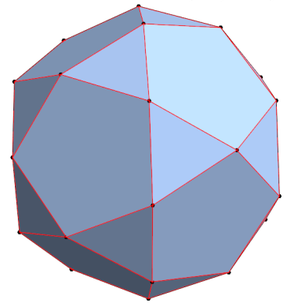
Hull ⌗ = 1
with 24 vertices
of 3D Norm = $\sqrt{\frac{1}{8}+\frac{\varphi^4}{8}}$
= $\frac{1}{4}\sqrt{9-3\sqrt{5}}$
= 0.3785
Vertex ⌗'s = {1, 24}



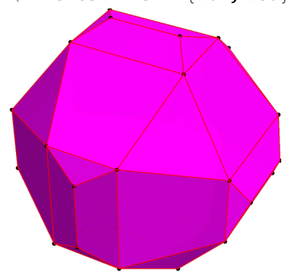
Hull ⌗ = 2
with 24 vertices
of 3D Norm = $\sqrt{\frac{1}{8\varphi^2}+\frac{\varphi^2}{8}}$
= $\frac{\sqrt{\frac{3}{2}}}{2}$
= 0.6124
Vertex ⌗'s = {25, 48}



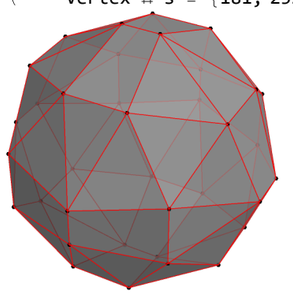
Hull ⌗ = 3
with 60 vertices
of 3D Norm = $\frac{1}{\sqrt{2}}$
= $\frac{1}{\sqrt{2}}$
= 0.7071
Vertex ⌗'s = {49, 108}



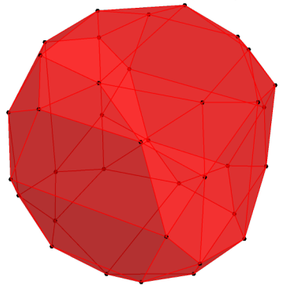
Hull ⌗ = 4
with 72 vertices
of 3D Norm = $\sqrt{\frac{5}{8}+\frac{\varphi^2}{8}}$
= $\frac{\sqrt{13-\sqrt{5}}}{4}$
= 0.8202
Vertex ⌗'s = {109, 180}



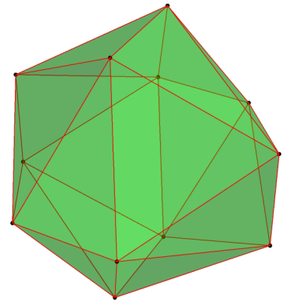
Hull ⌗ = 5
with 72 vertices
of 3D Norm = $\sqrt{\frac{1}{2}+\frac{1}{8\varphi^2}+\frac{\varphi^2}{8}}$
= $\frac{\sqrt{\frac{7}{2}}}{2}$
= 0.9354
Vertex ⌗'s = {181, 252}



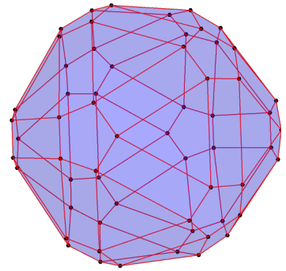
Hull ⌗ = 6
with 72 vertices
of 3D Norm = $\sqrt{\frac{5}{8}+\frac{1}{8\varphi^2}}$
= $\frac{\sqrt{13+\sqrt{5}}}{4}$
= 0.9758
Vertex ⌗'s = {253, 324}



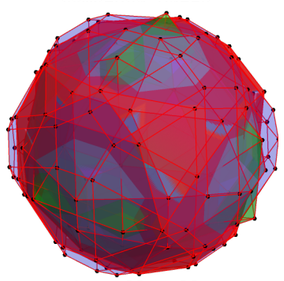
Hull ⌗ = 7
with 24 vertices
of 3D Norm = $\sqrt{\frac{1}{8}+\frac{1}{8\varphi^4}}$
= $\frac{1}{4}\sqrt{3\left(3+\sqrt{5}\right)}$
= 0.9908
Vertex ⌗'s = {325, 348}



Hull ⌗ = 8
with 60 vertices
of 3D Norm = 1
= 1
= 1.
Vertex ⌗'s = {349, 408}



Combined Hulls=



Overall Hull=