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(Alt) In[ ]:= SetDirectory["C:\\drorbn\\AcademicPensieve\\Projects\\FullDoPeGDO"];
<< Engine.m
```

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(Alt) In[ ]:= log = ReadList["CCFLog.m"]
```

(Alt) Out[]:=

$$\left\{ \left\{ 0.031, Fa_{[i\$7219]} F\alpha_{[i\$7219]} + Fa_{[j\$7219]} F\alpha_{[j\$7219]} + Fb_{[i\$7219]} F\beta_{[i\$7219]} + \dots 30 \dots + \right. \right.$$

$$\frac{2 \dots 4 \dots f\$7219 \dots [\mu\$7219]}{1 - \dots 1 \dots} + \frac{b_{i\$7219}^2 F\eta_{[i\$7219]}^2 f\$7219 \dots [\lambda\$7219]^2 f\$7219_{MI\$7219[2,0,0]} [\mu\$7219]}{1 - 4 b_{i\$7219}^2 f\$7219_{MI\$7219[0,0,2]} [\lambda\$7219] f\$7219_{MI\$7219[2,0,0]} [\mu\$7219]} -$$

$$\frac{4 b_{i\$7219}^2 F\eta_{[i\$7219]}^2 f\$7219_{MI\$7219[0,0,2]} [\lambda\$7219] f\$7219_{MI\$7219[2,0,0]} [\lambda\$7219] f\$7219_{MI\$7219[2,0,0]} [\mu\$7219]}{1 - 4 b_{i\$7219}^2 f\$7219_{MI\$7219[0,0,2]} [\lambda\$7219] f\$7219_{MI\$7219[2,0,0]} [\mu\$7219]} \left. \right\},$$

$$\dots 12 \dots, \{89.094, \dots 1 \dots \}$$

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```
(Alt) In[ ]:= e = log[[-1, 2]]
```

(Alt) Out[]:=

$$\frac{3 b_{i\$13555}^3 B_{i\$13555}^{3 \lambda\$13555}}{2 (b_{i\$13555} + b_{[i\$13555]})^4 (b_{i\$13555} + b_{[j\$13555]})^4 \mathcal{A}_{[i\$13555]}^3} - \frac{9 e^{-3 \mu\$13555 h (b_{i\$13555} + b_{[i\$13555]})} b_{i\$13555}^3 B_{i\$13555}^{3 \lambda\$13555}}{2 (b_{i\$13555} + b_{[i\$13555]})^4 (b_{i\$13555} + b_{[i\$13555]})^4 \mathcal{A}_{[i\$13555]}^3} +$$

$$\dots 5605 \dots + \frac{2 e^{-\mu\$13555 h (b_{i\$13555} + b_{[j\$13555]}) - h (\dots 1 \dots)} \lambda\$13555 \mu\$13555 h^2 b_{i\$13555} b_{[i\$13555]}^2 B_{i\$13555}^{\lambda\$13555 + \mu\$13555}}{(b_{i\$13555} + b_{[i\$13555]})^4 (b_{i\$13555} + b_{[j\$13555]})^2 \mathcal{A}_{[i\$13555]}^2 \mathcal{A}_{[j\$13555]}}$$

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```
(Alt) In[ ]:= Timing[u = 12U[e]]
```

(Alt) Out[]:=

$$\left\{ 2.17188, \frac{3 b_{i\$13555}^3 B_{i\$13555}^{3 \lambda\$13555}}{2 (b_{i\$13555} + b_{[i\$13555]})^4 (b_{i\$13555} + b_{[j\$13555]})^4 \mathcal{A}_{[i\$13555]}^3} + \right.$$

$$\left. \dots 5070 \dots + \frac{2 \lambda\$13555 \mu\$13555 h^2 b_{i\$13555} b_{[i\$13555]}^2 B_{i\$13555}^{3 \lambda\$13555 + 3 \mu\$13555} B_{[i\$13555]}^2 B_{[j\$13555]}^2}{(b_{i\$13555} + b_{[i\$13555]})^4 (b_{i\$13555} + b_{[j\$13555]})^2 \mathcal{A}_{[i\$13555]}^2 \mathcal{A}_{[j\$13555]}} \right\}$$

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(Alt) In[]:= **Timing[1 = U21[e]]**

$$\left\{ 0.5625, \frac{e^{-2 \mu_{13555} h} b_{13555}^{-2 \alpha_{j13555}} b_{13555}^4}{(b_{13555} + b_{j13555})^4 (b_{13555} + b_{j13555})^5} - \frac{5 e^{-2 \mu_{13555} h} b_{13555}^{-2 \alpha_{j13555}} b_{13555}^4}{(b_{13555} + b_{j13555})^4 (b_{13555} + b_{j13555})^5} + \dots 5602 \dots + \dots 1 \dots - \frac{2 e^{-\dots} \lambda_{13555} \mu_{13555} h^2 b_{13555} b_{j13555}^2}{(b_{13555} + b_{j13555})^4 (\dots)^2} + \dots \right\}$$

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(Alt) In[]:= **LeafCount /@ {e, 1, u}**

(Alt) Out[]:= {281 823, 293 793, 213 445}

In[]:= **LeafCount@e**

Out[]:= 281 823

In[]:= **LeafCount@Factor[e]**

Out[]:= 348 001

(Alt) In[]:= **Timing@LeafCount[fu = Factor[u]]**

(Alt) Out[]:= {8.29688, 57 332}

(Alt) In[]:= **Timing@LeafCount[f1 = Factor[1]]**

(Alt) Out[]:= {196.297, 364 508}

In[]:= **Timing@LeafCount[fe = Factor[e]]**

Out[]:= {87.0625, 348 001}

In[]:= **Timing@LeafCount[re = ExpandNumerator@ExpandDenominator@Together[e]]**

Out[]:= {222.578, 353 904}

In[]:= **Timing@LeafCount[tu = Together[u]]**

Out[]:= {3.73438, 57 331}

In[]:= **Timing@LeafCount[te = Together[e]]**

Out[]:= {38.6875, 348 001}

In[]:= **Timing@LeafCount[re1 = ExpandAll@Together[e]]**

Out[]:= {237.156, 1 970 175}

In[]:= **re1**

$$\begin{aligned}
 & - \left(\left(6 e^{14 \lambda i_{13555} h b_{i_{13555}} + 17 \mu i_{13555} h b_{i_{13555}} + 14 \dots 2 \dots} b_{\dots} + 17 \mu i_{13555} h b_{j_{13555}} \right. \right. \\
 & \quad \left. \left. \mu i_{13555} h b_{i_{13555}}^4 B_{i_{13555}}^3 \mu i_{13555} \mathcal{A}_{i_{13555}}^3 \right) \right) / \\
 & \left(e^{17 \lambda i_{13555} h b_{i_{13555}} + 17 \mu i_{13555} h b_{i_{13555}} + 17 \lambda i_{13555} h b_{i_{13555}} + 17 \mu i_{13555} h b_{j_{13555}}} b_{i_{13555}}^8 \mathcal{A}_{i_{13555}}^3 \right. \\
 & \quad \left. \mathcal{A}_{j_{13555}}^3 + \dots 23 \dots + e^{\dots 1 \dots} b_{i_{13555}}^4 b_{j_{13555}}^4 \mathcal{A}_{i_{13555}}^3 \mathcal{A}_{j_{13555}}^3 \right) + \\
 & \quad \left(\dots 1889 \dots + \dots 1 \dots - \frac{8 \dots 9 \dots \mathcal{A}_{j_{13555}}^3}{e^{\dots 1 \dots} b_{i_{13555}}^8 \mathcal{A}_{i_{13555}}^3 + \dots 23 \dots + \dots 1 \dots} \right)
 \end{aligned}$$

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In[]:= **re**

$$\begin{aligned}
 & \left(-6 e^{3 \mu i_{13555} h (b_{i_{13555}} + b_{j_{13555}}) + \dots 6 \dots} + h (2 \lambda i_{13555} b_{i_{13555}} + \dots 2 \dots + 3 \mu i_{13555} b_{\dots}) \right. \\
 & \quad \left. \mu i_{13555} h b_{i_{13555}}^4 B_{i_{13555}}^3 \mu i_{13555} \mathcal{A}_{i_{13555}}^3 + \dots 2185 \dots + 4 \dots 9 \dots \mathcal{A}_{j_{13555}}^3 \right) / \\
 & \left(e^{3 \lambda i_{13555} h (b_{i_{13555}} + b_{j_{13555}}) + \dots 7 \dots} + h (2 \lambda i_{13555} b_{i_{13555}} + \dots 1 \dots + \dots 1 \dots + 3 \mu i_{13555} b_{\dots}) b_{i_{13555}}^8 \mathcal{A}_{i_{13555}}^3 \right. \\
 & \quad \left. \mathcal{A}_{j_{13555}}^3 + \dots 23 \dots + e^{\dots 3 \dots + \dots 7 \dots} + h (\dots 1 \dots) b_{i_{13555}}^4 b_{\dots}^4 \mathcal{A}_{\dots}^3 \mathcal{A}_{j_{13555}}^3 \right)
 \end{aligned}$$

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In[]:= **te**

$$\begin{aligned}
 & \left(e^{\dots 1 \dots} \left(-6 e^{3 \mu i_{13555} h (b_{i_{13555}} + b_{j_{13555}}) + \dots 6 \dots} + h (2 \lambda i_{13555} b_{i_{13555}} + \dots 2 \dots + \dots 1 \dots) \right. \right. \\
 & \quad \left. \left. \mu i_{13555} h b_{i_{13555}}^4 B_{i_{13555}}^3 \mu i_{13555} \mathcal{A}_{i_{13555}}^3 + \dots 2185 \dots + 4 \dots 9 \dots \mathcal{A}_{j_{13555}}^3 \right) \right) / \\
 & \left((b_{i_{13555}} + b_{j_{13555}})^4 (b_{i_{13555}} + b_{j_{13555}})^4 \mathcal{A}_{i_{13555}}^3 \mathcal{A}_{j_{13555}}^3 \right)
 \end{aligned}$$

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In[]:= fe

Out[]:=

$$\left(e^{\dots 1 \dots} \left(-6 e^{3 \mu_{i13555} \hbar (b_{i13555} + b_{j13555})} + \dots 6 \dots + \hbar \left(2 \lambda_{i13555} b_{i13555} + \dots 2 \dots + \dots 1 \dots \right) \right) \right. \\ \left. \mu_{i13555} \hbar b_{i13555}^4 B_{i13555}^3 \mathcal{A}_{i13555}^3 + \dots 2185 \dots + 4 \dots 9 \dots \mathcal{A}_{j13555}^3 \right) / \\ \left((b_{i13555} + b_{j13555})^4 (b_{i13555} + b_{j13555})^4 \mathcal{A}_{i13555}^3 \mathcal{A}_{j13555}^3 \right)$$

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In[]:= tu

Out[]:= tu