

Pensieve header: \$5\_2\$ for k=1,2,....

```
In[ ]:= SetDirectory["C:\\drorbn\\AcademicPensieve\\Projects\\SL2Portfolio2"];
<< KnotTheory`;
<< "../Profile/Profile.m";
<< "Engine-Speedy.m";
<< "Objects.m";
<< "KT.m";
ħ = γ = 1;
(*BeginProfile[];
PopupWindow[Button["Show Profile Monitor"],
Dynamic[PrintProfile[], UpdateInterval->3, TrackedSymbols->{}]]*)
```

- ... ParentDirectory: Argument File should be a positive machine-size integer, a nonempty string, or a File specification.
- ... ParentDirectory: Argument File should be a positive machine-size integer, a nonempty string, or a File specification.
- ... ToFileName: String or list of strings expected at position 1 in ToFileName{{File, WikiLink, mathematica}}.
- ... ToFileName: String or list of strings expected at position 1 in ToFileName{{File, QuantumGroups}}.

Loading KnotTheory` version of January 20, 2015, 10:42:19.1122.

Read more at <http://katlas.org/wiki/KnotTheory>.

This is Profile.m of <http://www.drorbn.net/AcademicPensieve/Projects/Profile/>.

This version: June 2018. Original version: July 1994.

Knot

```
In[ ]:= $k = 1; Timing@Z@Knot[5, 2]
```

Knot

... Get: ParentDirectory[File] in \$Path is not a string.

Knot

KnotTheory: Loading precomputed data in PD4Knots`.

Knot

$$Out[ ]:= \left\{ 8.51563, \mathbb{E}_{\{\} \rightarrow \{\emptyset\}} \left[ \emptyset, \emptyset, \frac{T}{2 - 3T + 2T^2} + \left( \frac{a(-4T + 4T^3)}{4 - 12T + 17T^2 - 12T^3 + 4T^4} + \frac{-9T + 20T^2 - 18T^3 + 8T^4 - T^5}{8 - 36T + 78T^2 - 99T^3 + 78T^4 - 36T^5 + 8T^6} + \frac{(-4T - 4T^2)xy}{4 - 12T + 17T^2 - 12T^3 + 4T^4} \right) \epsilon + O[\epsilon]^2 \right] \right\}$$

In[\*]:= \$k = 2; Timing@Z@Knot[5, 2]

$$\begin{aligned}
 \text{Out[*]} = & \left\{ 364.656, \mathbb{E}_{\{\} \rightarrow \{\emptyset\}} \left[ 0, 0, \right. \right. \\
 & \frac{T}{2 - 3T + 2T^2} + \left( \frac{a(-4T + 4T^3)}{4 - 12T + 17T^2 - 12T^3 + 4T^4} + \frac{-9T + 20T^2 - 18T^3 + 8T^4 - T^5}{8 - 36T + 78T^2 - 99T^3 + 78T^4 - 36T^5 + 8T^6} + \right. \\
 & \left. \frac{(-4T - 4T^2)xy}{4 - 12T + 17T^2 - 12T^3 + 4T^4} \right) \epsilon + \left( \frac{a^2(8T + 12T^2 - 48T^3 + 12T^4 + 8T^5)}{8 - 36T + 78T^2 - 99T^3 + 78T^4 - 36T^5 + 8T^6} + \right. \\
 & \left. \left( a(36T - 52T^2 - 84T^3 + 192T^4 - 148T^5 + 52T^6 - 4T^7) \right) / \right. \\
 & \left. \left( 16 - 96T + 280T^2 - 504T^3 + 609T^4 - 504T^5 + 280T^6 - 96T^7 + 16T^8 \right) + \right. \\
 & \left. \left( 82T - 332T^2 + 547T^3 - 522T^4 + 322T^5 - 122T^6 + 27T^7 - 4T^8 + 2T^9 \right) / \left( 64 - 480T + \right. \right. \\
 & \left. \left. 1760T^2 - 4080T^3 + 6580T^4 - 7686T^5 + 6580T^6 - 4080T^7 + 1760T^8 - 480T^9 + 64T^{10} \right) + \right. \\
 & \left. \frac{a(16T + 56T^2 - 48T^3 - 32T^4)xy}{8 - 36T + 78T^2 - 99T^3 + 78T^4 - 36T^5 + 8T^6} + \left( (20T - 32T^2 - 32T^5 + 20T^6)xy \right) / \right. \\
 & \left. \left( 16 - 96T + 280T^2 - 504T^3 + 609T^4 - 504T^5 + 280T^6 - 96T^7 + 16T^8 \right) + \right. \\
 & \left. \left. \frac{(12T + 38T^2 + 12T^3)x^2y^2}{8 - 36T + 78T^2 - 99T^3 + 78T^4 - 36T^5 + 8T^6} \right) \epsilon^2 + 0[\epsilon]^3 \right\}
 \end{aligned}$$

In[\*]:= \$k = 3; Timing@Z@Knot [5, 2]

$$\text{Out[*]} = \left\{ 14743.9, \mathbb{E}_{\{\} \rightarrow \{\emptyset\}} \left[ \emptyset, \emptyset, \right. \right. \\ \left. \frac{T}{2 - 3T + 2T^2} + \left( \frac{a(-4T + 4T^3)}{4 - 12T + 17T^2 - 12T^3 + 4T^4} + \frac{-9T + 20T^2 - 18T^3 + 8T^4 - T^5}{8 - 36T + 78T^2 - 99T^3 + 78T^4 - 36T^5 + 8T^6} + \right. \right. \\ \left. \frac{(-4T - 4T^2)xy}{4 - 12T + 17T^2 - 12T^3 + 4T^4} \right) \in + \left( \frac{a^2(8T + 12T^2 - 48T^3 + 12T^4 + 8T^5)}{8 - 36T + 78T^2 - 99T^3 + 78T^4 - 36T^5 + 8T^6} + \right. \\ \left. \left( a(36T - 52T^2 - 84T^3 + 192T^4 - 148T^5 + 52T^6 - 4T^7) \right) / \right. \\ \left. (16 - 96T + 280T^2 - 504T^3 + 609T^4 - 504T^5 + 280T^6 - 96T^7 + 16T^8) + \right. \\ \left. (82T - 332T^2 + 547T^3 - 522T^4 + 322T^5 - 122T^6 + 27T^7 - 4T^8 + 2T^9) / (64 - 480T + \right. \\ \left. 1760T^2 - 4080T^3 + 6580T^4 - 7686T^5 + 6580T^6 - 4080T^7 + 1760T^8 - 480T^9 + 64T^{10}) + \right. \\ \left. \frac{a(16T + 56T^2 - 48T^3 - 32T^4)xy}{8 - 36T + 78T^2 - 99T^3 + 78T^4 - 36T^5 + 8T^6} + \left( (20T - 32T^2 - 32T^5 + 20T^6)xy \right) / \right. \\ \left. (16 - 96T + 280T^2 - 504T^3 + 609T^4 - 504T^5 + 280T^6 - 96T^7 + 16T^8) + \right. \\ \left. \frac{(12T + 38T^2 + 12T^3)x^2y^2}{8 - 36T + 78T^2 - 99T^3 + 78T^4 - 36T^5 + 8T^6} \right) \in^2 + \\ \left( (a^3(-32T - 192T^2 + 664T^3 - 664T^5 + 192T^6 + 32T^7)) / \right. \\ \left. (48 - 288T + 840T^2 - 1512T^3 + 1827T^4 - 1512T^5 + 840T^6 - 288T^7 + 48T^8) + \right. \\ \left. (a^2(-72T - 116T^2 + 1320T^3 - 1908T^4 + 640T^5 + 468T^6 - 520T^7 + 172T^8 - 8T^9)) / \right. \\ \left. (32 - 240T + 880T^2 - 2040T^3 + 3290T^4 - 3843T^5 + 3290T^6 - 2040T^7 + 880T^8 - 240T^9 + 32T^{10}) + \right. \\ \left. (a(-164T + 344T^2 + 1182T^3 - 4418T^4 + 6004T^5 - 4800T^6 + 2476T^7 - 750T^8 + 90T^9 + 8T^{10} + \right. \\ \left. 4T^{11})) / (64 - 576T + 2544T^2 - 7200T^3 + 14460T^4 - 21636T^5 + 24689T^6 - 21636T^7 + \right. \\ \left. 14460T^8 - 7200T^9 + 2544T^{10} - 576T^{11} + 64T^{12}) + (-762T + 4040T^2 - 7620T^3 + \right. \\ \left. 6388T^4 - 1789T^5 - 2014T^6 + 3458T^7 - 2374T^8 + 471T^9 + 496T^{10} - 412T^{11} + 128T^{12} - 10T^{13}) / \right. \\ \left. (768 - 8064T + 41664T^2 - 139104T^3 + 333648T^4 - 606312T^5 + 859236T^6 - 963666T^7 + \right. \\ \left. 859236T^8 - 606312T^9 + 333648T^{10} - 139104T^{11} + 41664T^{12} - 8064T^{13} + 768T^{14}) + \right. \\ \left. (a^2(-32T - 320T^2 + 280T^3 + 704T^4 - 384T^5 - 128T^6)xy) / \right. \\ \left. (16 - 96T + 280T^2 - 504T^3 + 609T^4 - 504T^5 + 280T^6 - 96T^7 + 16T^8) + \right. \\ \left. (a(-80T - 104T^2 + 944T^3 - 768T^4 + 640T^5 - 672T^6 - 144T^7 + 160T^8)xy) / \right. \\ \left. (32 - 240T + 880T^2 - 2040T^3 + 3290T^4 - 3843T^5 + 3290T^6 - 2040T^7 + 880T^8 - 240T^9 + 32T^{10}) + \right. \\ \left. ((-188T + 508T^2 - 62T^3 - 140T^4 - 252T^5 - 252T^6 - 140T^7 - 62T^8 + 508T^9 - 188T^{10})xy) / \right. \\ \left. (192 - 1728T + 7632T^2 - 21600T^3 + 43380T^4 - 64908T^5 + 74067T^6 - \right. \\ \left. 64908T^7 + 43380T^8 - 21600T^9 + 7632T^{10} - 1728T^{11} + 192T^{12}) + \right. \\ \left. (a(-48T - 448T^2 - 132T^3 + 608T^4 + 144T^5)x^2y^2) / \right. \\ \left. (16 - 96T + 280T^2 - 504T^3 + 609T^4 - 504T^5 + 280T^6 - 96T^7 + 16T^8) + \right. \\ \left. ((-12T + 32T^2 - 138T^3 - 356T^4 + 1254T^5 - 442T^6 - 204T^7)x^2y^2) / \right. \\ \left. (32 - 240T + 880T^2 - 2040T^3 + 3290T^4 - 3843T^5 + 3290T^6 - 2040T^7 + 880T^8 - 240T^9 + 32T^{10}) + \right. \\ \left. ((-32T - 208T^2 - 208T^3 - 32T^4)x^3y^3) / \right. \\ \left. (16 - 96T + 280T^2 - 504T^3 + 609T^4 - 504T^5 + 280T^6 - 96T^7 + 16T^8) \right) \in^3 + 0[\in^4] \left. \right\}$$

In[\*]:= \$k = 4; Timing@Z@Knot [5, 2]

\$k = 5; Timing@Z@Knot [5, 2]