Experimentation on the size of x .

*In[ ]:=* **Ks = ReadList["http://drorbn.net/AcademicPensieve/People/Dunfield/nmd_random_knots"]**

*Out[ ]=*

```
{PD[X[3, 1, 4, 0], X[5, 3, 0, 2], X[1, 5, 2, 4]],
  ⋯ 996 ⋯ , PD[X[555, 537, 556, 536], X[1662, 1693, 1663, 1694],
   X[422, 426, 423, 425], X[1962, 1888, 1963, 1887], X[760, 338, 761, 337],
   X[331, 790, 332, 791], X[783, 775, 784, 774], X[723, 709, 724, 708],
   X[1728, 1570, 1729, 1569], X[1047, 1031, 1048, 1030], X[175, 199, 176, 198],
   X[62, 66, 63, 65], X[962, 926, 963, 925], X[1150, 1155, 1151, 1156],
   X[611, 628, 612, 629], X[1588, 1635, 1589, 1636], ⋯ 969 ⋯ ,
   X[1849, 1795, 1850, 1794], X[820, 1346, 821, 1345], X[596, 592, 597, 591],
   X[1174, 1129, 1175, 1130], X[1154, 1181, 1155, 1182], X[1489, 1505, 1490, 1504],
   X[1478, 1452, 1479, 1451], X[1453, 1702, 1454, 1703], X[956, 959, 957, 960],
   X[1429, 478, 1430, 479], X[1257, 1255, 1258, 1254], X[814, 1294, 815, 1293],
   X[1699, 1484, 1700, 1485], X[1156, 1133, 1157, 1134], X[1444, 486, 1445, 485]]}
```

large output      **show less**      **show more**      **show all**      **set size limit...**

*In[ ]:=* **sampleKs = Ks[[#]] & /@ Range[5, 200, 5]**

*Out[ ]=*

```
{PD[X[10, 4, 11, 3], X[0, 6, 1, 5], X[2, 10, 3, 9],
   X[8, 12, 9, 11], X[4, 7, 5, 8], X[12, 1, 13, 2], X[6, 0, 7, 13]], ⋯ 38 ⋯ ,
 PD[X[46, 54, 47, 53], X[185, 197, 186, 196], X[332, 335, 333, 336], X[322, 298, 323, 297],
   X[11, 17, 12, 16], X[239, 109, 240, 108], X[182, 65, 183, 66], X[243, 103, 244, 102],
   X[79, 163, 80, 162], X[95, 114, 96, 115], X[310, 299, 311, 300], X[273, 354, 274, 355],
   X[210, 194, 211, 193], X[296, 322, 297, 321], X[125, 219, 126, 218],
   X[215, 207, 216, 206], X[202, 31, 203, 32], ⋯ 169 ⋯ , X[145, 180, 146, 181],
   X[283, 389, 284, 388], X[69, 81, 70, 80], X[109, 245, 110, 244], X[391, 289, 392, 288],
   X[190, 209, 191, 210], X[176, 156, 177, 155], X[221, 3, 222, 2], X[316, 320, 317, 319],
   X[54, 48, 55, 47], X[298, 309, 299, 310], X[318, 323, 319, 324], X[117, 15, 118, 14],
   X[103, 243, 104, 242], X[265, 347, 266, 346], X[168, 147, 169, 148]]}
```

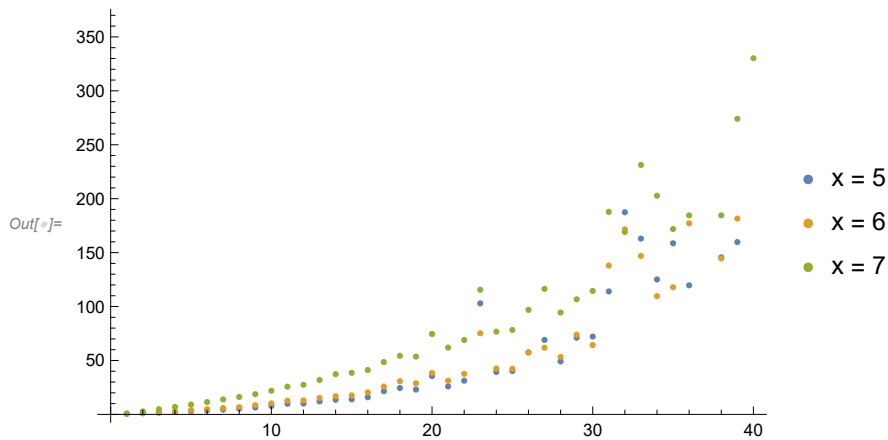large output      **show less**      **show more**      **show all**      **set size limit...**

*In[ ]:=* **optSize5 = (#[[1]] + JonesResult[#[[2]]] * 0.000013) & /@**
       **(Timing[OptimizedKnotPresentation[#, {GreedyCriteria → JonesResult,**
             **InvariantCriteria → PartialJonesOptimize, OptSize → 5}]] & /@ sampleKs);**

*In[ ]:=* **optSize6 = (#[[1]] + JonesResult[#[[2]]] * 0.000013) & /@**
       **(Timing[OptimizedKnotPresentation[#, {GreedyCriteria → JonesResult,**
             **InvariantCriteria → PartialJonesOptimize, OptSize → 6}]] & /@ sampleKs);**

*In[ ]:=* **optSize7 = (#[[1]] + JonesResult[#[[2]]] * 0.000013) & /@**
       **(Timing[OptimizedKnotPresentation[#, {GreedyCriteria → JonesResult,**
             **InvariantCriteria → PartialJonesOptimize, OptSize → 7}]] & /@ sampleKs);**

In[ ]:= `ListPlot[{optSize5, optSize6, optSize7}, PlotLegends → {"x = 5", "x = 6", "x = 7"}]`

Out[ ]=



In[ ]:= `largeSampleKs = Ks⟦#⟧ & /@ Range[205, 400, 5]`

Out[ ]=

```
{PD[X[9, 65, 10, 64], X[144, 124, 145, 123], X[6, 205, 7, 206], X[401, 225, 402, 224],
   X[132, 203, 133, 204], X[16, 57, 17, 58], X[124, 131, 125, 132], X[382, 369, 383, 370],
   X[121, 90, 122, 91], X[235, 404, 236, 405], X[332, 379, 333, 380], X[212, 312, 213, 311],
   X[19, 12, 20, 13], X[278, 283, 279, 284], X[406, 222, 407, 221], X[377, 248, 378, 249],
   X[73, 66, 74, 67], X[130, 180, 131, 179], X[258, 266, 259, 265],  ··· 169 ··· ,
   X[396, 254, 397, 253], X[409, 238, 410, 239], X[407, 240, 408, 241],
   X[372, 337, 373, 338], X[343, 361, 344, 360], X[26, 22, 27, 21], X[241, 265, 242, 264],
   X[206, 5, 207, 6], X[61, 14, 62, 15], X[267, 321, 268, 320], X[378, 331, 379, 332],
   X[288, 297, 289, 298], X[118, 103, 119, 104], X[405, 234, 406, 235],
   X[223, 401, 224, 400], X[347, 363, 348, 362], X[114, 109, 115, 110],
   X[135, 197, 136, 196], X[298, 281, 299, 282]],  ··· 38 ··· , PD[ ··· 1 ··· ]}
```
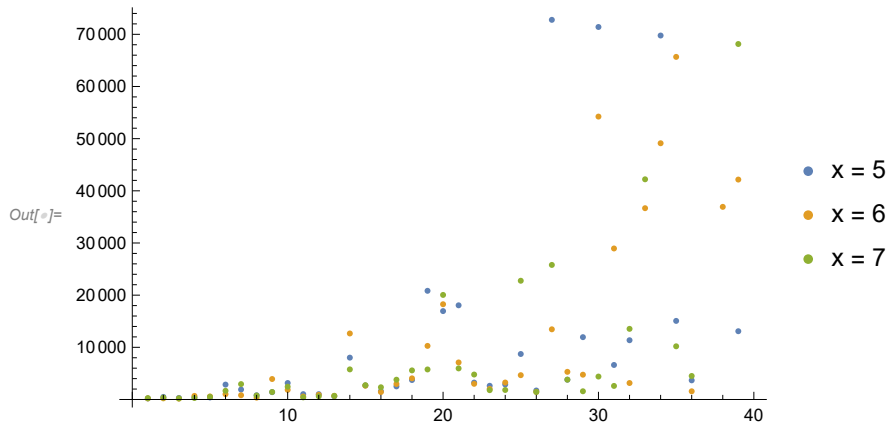
large output    **show less**    **show more**    **show all**    **set size limit...**

In[ ]:= `optSize5Back = (#⟦1⟧ + JonesResult[#⟦2⟧] * 0.000013) & /@`
        `(Timing[OptimizedKnotPresentation[# , {GreedyCriteria → JonesResult,`
            `InvariantCriteria → PartialJonesOptimize, OptSize → 5}]] & /@ largeSampleKs);`

In[ ]:= `optSize6Back = (#⟦1⟧ + JonesResult[#⟦2⟧] * 0.000013) & /@`
        `(Timing[OptimizedKnotPresentation[# , {GreedyCriteria → JonesResult,`
            `InvariantCriteria → PartialJonesOptimize, OptSize → 6}]] & /@ largeSampleKs);`

In[ ]:= `optSize7Back = (#⟦1⟧ + JonesResult[#⟦2⟧] * 0.000013) & /@`
        `(Timing[OptimizedKnotPresentation[# , {GreedyCriteria → JonesResult,`
            `InvariantCriteria → PartialJonesOptimize, OptSize → 7}]] & /@ largeSampleKs);`

*In[ ]:=* `ListPlot[{optSize5Back, optSize6Back, optSize7Back},`
     `PlotLegends → {"x = 5", "x = 6", "x = 7"}]`

*Out[ ]=*



*In[ ]:=* `ListPlot[{optSize5Back[[1 ;; 20]], optSize6Back[[1 ;; 20]], optSize7Back[[1 ;; 20]]},`
     `PlotLegends → {"x = 5", "x = 6", "x = 7"}]`

*Out[ ]=*