

```

{
  "cells": [
    {
      "cell_type": "code",
      "execution_count": 1,
      "metadata": {},
      "outputs": [],
      "source": [
        "from itertools import permutations"
      ]
    },
    {
      "cell_type": "code",
      "execution_count": 3,
      "metadata": {},
      "outputs": [
        {
          "name": "stdout",
          "output_type": "stream",
          "text": [
            "[[6, 4, 1, 2, 7], [10, 5, 3, 9], [15, 8, 12], [23, 20], [43]]\n",
            "[[7, 2, 1, 4, 6], [9, 3, 5, 10], [12, 8, 15], [20, 23], [43]]\n",
            "[[6, 1, 3, 2, 8], [7, 4, 5, 10], [11, 9, 15], [20, 24], [44]]\n",
            "[[8, 2, 3, 1, 6], [10, 5, 4, 7], [15, 9, 11], [24, 20], [44]]\n",
            "[[6, 4, 1, 2, 9], [10, 5, 3, 11], [15, 8, 14], [23, 22], [45]]\n",
            "[[9, 2, 1, 4, 6], [11, 3, 5, 10], [14, 8, 15], [22, 23], [45]]\n"
          ]
        }
      ]
    },
    "source": [
      "def pyramid_sum(target, *args):\n",
      "    \"\"\"This function calculates next rows of the tree by summing\n",
      "    adjacent 2 numbers from the previous row.\n",
      "    rolling_lst is set to list of numbers that are being passed\n",
      "    in the function. \n",
      "    If a result of summation of 2 adjacent values is not being\n",
      "    present in rolling_lst then it is added to it.\n",
      "    Once above condition is violated the function returns None.\n",
      "\n",
      "    If the top hexagon is not equal to target the function also\n",
      "    returns None.\n",
      "    Otherwise, it returns a list of lists as an answer to the\n",
      "    problem\"\"\"\n",
      "    row_lst_base = [_ for _ in args]\n",
      "    rolling_lst = list(args)\n",
      "    row_lst = [row_lst_base]\n",
      "    for level in range(len(args) - 1):\n",
      "        row_lst_new = []\n",
      "        for i in range(len(row_lst[level]) - 1):\n",
      "            pair_sum = row_lst[level][i] + row_lst[level][i + 1]\n",
      "            if pair_sum not in rolling_lst:\n",
      "                rolling_lst += [pair_sum]\n",
      "                row_lst_new.append(pair_sum)\n",
      "            else:\n",

```

```

        return None\n",
        row_lst += [row_lst_new]\n",
        \n",
        return row_lst if pair_sum == target else None\n",
    "\n",
    perm = permutations(range(1, 12), 5)\n",
    "\n",
    targets = [43, 44, 45]\n",
    for target in targets:\n",
        max_left_element = target - 32\n",
        perm = permutations(range(1, 12), 5)\n",
        for idx, args in enumerate(list(perm)):\n",
            res = []\n",
            p_sum = pyramid_sum(target, *args)\n",
            if p_sum:\n",
                print(p_sum)\n",
                res += p_sum"
    ]
},
{
    "cell_type": "code",
    "execution_count": null,
    "metadata": {},
    "outputs": [],
    "source": []
}
],
"metadata": {
    "kernelspec": {
        "display_name": "Python 3",
        "language": "python",
        "name": "python3"
    },
    "language_info": {
        "codemirror_mode": {
            "name": "ipython",
            "version": 3
        },
        "file_extension": ".py",
        "mimetype": "text/x-python",
        "name": "python",
        "nbconvert_exporter": "python",
        "pygments_lexer": "ipython3",
        "version": "3.7.1"
    }
},
"nbformat": 4,
"nbformat_minor": 4
}

```