



سہ ماہی کے مسائل کے حل

سہ ماہی کے مسائل کے حل

سہ ماہی کے مسائل کے حل 2 سہ ماہی کے مسائل کے حل

03 سہ ماہی کے حل 2014



































פונקציות קרימיות וסדרות מתמטיות ורצפים נאומים:

א) דוגמה:  $f(x) = x^2$  ו-  $g(x) = 2x + 1$  הן פונקציות ממסד הממשי למסד הממשי. נגדיר את הפונקציה  $h(x) = f(g(x))$ .  
אז  $h(x) = (2x + 1)^2 = 4x^2 + 4x + 1$ . נגדיר את הפונקציה  $k(x) = g(f(x))$ . אז  $k(x) = 2x^2 + 1$ .  
נבדוק את התכונות הבאות:  
1.  $h(0) = 1$  ו-  $k(0) = 1$ .  
2.  $h(1) = 4 + 4 + 1 = 9$  ו-  $k(1) = 2 + 1 = 3$ .  
3.  $h(2) = 16 + 8 + 1 = 25$  ו-  $k(2) = 8 + 1 = 9$ .  
4.  $h(3) = 36 + 12 + 1 = 49$  ו-  $k(3) = 18 + 1 = 19$ .  
5.  $h(4) = 64 + 16 + 1 = 81$  ו-  $k(4) = 32 + 1 = 33$ .  
6.  $h(5) = 100 + 20 + 1 = 121$  ו-  $k(5) = 50 + 1 = 51$ .  
7.  $h(6) = 144 + 24 + 1 = 169$  ו-  $k(6) = 72 + 1 = 73$ .  
8.  $h(7) = 196 + 28 + 1 = 225$  ו-  $k(7) = 98 + 1 = 99$ .  
9.  $h(8) = 256 + 32 + 1 = 289$  ו-  $k(8) = 128 + 1 = 129$ .  
10.  $h(9) = 324 + 36 + 1 = 361$  ו-  $k(9) = 162 + 1 = 163$ .  
11.  $h(10) = 400 + 40 + 1 = 441$  ו-  $k(10) = 200 + 1 = 201$ .  
12.  $h(11) = 484 + 44 + 1 = 529$  ו-  $k(11) = 242 + 1 = 243$ .  
13.  $h(12) = 576 + 48 + 1 = 625$  ו-  $k(12) = 288 + 1 = 289$ .  
14.  $h(13) = 676 + 52 + 1 = 729$  ו-  $k(13) = 338 + 1 = 339$ .  
15.  $h(14) = 784 + 56 + 1 = 841$  ו-  $k(14) = 392 + 1 = 393$ .  
16.  $h(15) = 900 + 60 + 1 = 961$  ו-  $k(15) = 450 + 1 = 451$ .  
17.  $h(16) = 1024 + 64 + 1 = 1089$  ו-  $k(16) = 512 + 1 = 513$ .  
18.  $h(17) = 1156 + 68 + 1 = 1225$  ו-  $k(17) = 578 + 1 = 579$ .  
19.  $h(18) = 1296 + 72 + 1 = 1369$  ו-  $k(18) = 648 + 1 = 649$ .  
20.  $h(19) = 1444 + 76 + 1 = 1521$  ו-  $k(19) = 722 + 1 = 723$ .  
21.  $h(20) = 1600 + 80 + 1 = 1681$  ו-  $k(20) = 800 + 1 = 801$ .  
22.  $h(21) = 1764 + 84 + 1 = 1849$  ו-  $k(21) = 882 + 1 = 883$ .  
23.  $h(22) = 1936 + 88 + 1 = 2025$  ו-  $k(22) = 968 + 1 = 969$ .  
24.  $h(23) = 2116 + 92 + 1 = 2209$  ו-  $k(23) = 1058 + 1 = 1059$ .  
25.  $h(24) = 2304 + 96 + 1 = 2401$  ו-  $k(24) = 1152 + 1 = 1153$ .  
26.  $h(25) = 2500 + 100 + 1 = 2601$  ו-  $k(25) = 1250 + 1 = 1251$ .  
27.  $h(26) = 2704 + 104 + 1 = 2809$  ו-  $k(26) = 1352 + 1 = 1353$ .  
28.  $h(27) = 2916 + 108 + 1 = 3025$  ו-  $k(27) = 1458 + 1 = 1459$ .  
29.  $h(28) = 3136 + 112 + 1 = 3249$  ו-  $k(28) = 1568 + 1 = 1569$ .  
30.  $h(29) = 3364 + 116 + 1 = 3481$  ו-  $k(29) = 1682 + 1 = 1683$ .  
31.  $h(30) = 3600 + 120 + 1 = 3721$  ו-  $k(30) = 1800 + 1 = 1801$ .  
32.  $h(31) = 3844 + 124 + 1 = 3969$  ו-  $k(31) = 1922 + 1 = 1923$ .  
33.  $h(32) = 4096 + 128 + 1 = 4225$  ו-  $k(32) = 2048 + 1 = 2049$ .  
34.  $h(33) = 4356 + 132 + 1 = 4489$  ו-  $k(33) = 2178 + 1 = 2179$ .  
35.  $h(34) = 4624 + 136 + 1 = 4761$  ו-  $k(34) = 2312 + 1 = 2313$ .  
36.  $h(35) = 4900 + 140 + 1 = 5041$  ו-  $k(35) = 2450 + 1 = 2451$ .  
37.  $h(36) = 5184 + 144 + 1 = 5329$  ו-  $k(36) = 2592 + 1 = 2593$ .  
38.  $h(37) = 5476 + 148 + 1 = 5625$  ו-  $k(37) = 2738 + 1 = 2739$ .  
39.  $h(38) = 5776 + 152 + 1 = 5929$  ו-  $k(38) = 2888 + 1 = 2889$ .  
40.  $h(39) = 6084 + 156 + 1 = 6241$  ו-  $k(39) = 3042 + 1 = 3043$ .  
41.  $h(40) = 6400 + 160 + 1 = 6561$  ו-  $k(40) = 3200 + 1 = 3201$ .  
42.  $h(41) = 6724 + 164 + 1 = 6889$  ו-  $k(41) = 3362 + 1 = 3363$ .  
43.  $h(42) = 7056 + 168 + 1 = 7225$  ו-  $k(42) = 3528 + 1 = 3529$ .  
44.  $h(43) = 7396 + 172 + 1 = 7569$  ו-  $k(43) = 3698 + 1 = 3699$ .  
45.  $h(44) = 7744 + 176 + 1 = 7921$  ו-  $k(44) = 3872 + 1 = 3873$ .  
46.  $h(45) = 8100 + 180 + 1 = 8281$  ו-  $k(45) = 4050 + 1 = 4051$ .  
47.  $h(46) = 8464 + 184 + 1 = 8649$  ו-  $k(46) = 4232 + 1 = 4233$ .  
48.  $h(47) = 8836 + 188 + 1 = 9025$  ו-  $k(47) = 4418 + 1 = 4419$ .  
49.  $h(48) = 9216 + 192 + 1 = 9409$  ו-  $k(48) = 4608 + 1 = 4609$ .  
50.  $h(49) = 9604 + 196 + 1 = 9801$  ו-  $k(49) = 4802 + 1 = 4803$ .  
51.  $h(50) = 10000 + 200 + 1 = 10201$  ו-  $k(50) = 5000 + 1 = 5001$ .  
52.  $h(51) = 10404 + 204 + 1 = 10609$  ו-  $k(51) = 5202 + 1 = 5203$ .  
53.  $h(52) = 10816 + 208 + 1 = 11025$  ו-  $k(52) = 5408 + 1 = 5409$ .  
54.  $h(53) = 11236 + 212 + 1 = 11449$  ו-  $k(53) = 5618 + 1 = 5619$ .  
55.  $h(54) = 11664 + 216 + 1 = 11881$  ו-  $k(54) = 5832 + 1 = 5833$ .  
56.  $h(55) = 12100 + 220 + 1 = 12321$  ו-  $k(55) = 6050 + 1 = 6051$ .  
57.  $h(56) = 12544 + 224 + 1 = 12769$  ו-  $k(56) = 6272 + 1 = 6273$ .  
58.  $h(57) = 13000 + 228 + 1 = 13225$  ו-  $k(57) = 6500 + 1 = 6501$ .  
59.  $h(58) = 13464 + 232 + 1 = 13689$  ו-  $k(58) = 6732 + 1 = 6733$ .  
60.  $h(59) = 13936 + 236 + 1 = 14161$  ו-  $k(59) = 6968 + 1 = 6969$ .  
61.  $h(60) = 14416 + 240 + 1 = 14641$  ו-  $k(60) = 7208 + 1 = 7209$ .  
62.  $h(61) = 14904 + 244 + 1 = 15129$  ו-  $k(61) = 7452 + 1 = 7453$ .  
63.  $h(62) = 15400 + 248 + 1 = 15625$  ו-  $k(62) = 7700 + 1 = 7701$ .  
64.  $h(63) = 15904 + 252 + 1 = 16129$  ו-  $k(63) = 7952 + 1 = 7953$ .  
65.  $h(64) = 16416 + 256 + 1 = 16641$  ו-  $k(64) = 8208 + 1 = 8209$ .  
66.  $h(65) = 16936 + 260 + 1 = 17161$  ו-  $k(65) = 8468 + 1 = 8469$ .  
67.  $h(66) = 17464 + 264 + 1 = 17689$  ו-  $k(66) = 8732 + 1 = 8733$ .  
68.  $h(67) = 18000 + 268 + 1 = 18225$  ו-  $k(67) = 9000 + 1 = 9001$ .  
69.  $h(68) = 18544 + 272 + 1 = 18769$  ו-  $k(68) = 9272 + 1 = 9273$ .  
70.  $h(69) = 19096 + 276 + 1 = 19321$  ו-  $k(69) = 9548 + 1 = 9549$ .  
71.  $h(70) = 19656 + 280 + 1 = 19881$  ו-  $k(70) = 9828 + 1 = 9829$ .  
72.  $h(71) = 20224 + 284 + 1 = 20449$  ו-  $k(71) = 10112 + 1 = 10113$ .  
73.  $h(72) = 20800 + 288 + 1 = 21025$  ו-  $k(72) = 10400 + 1 = 10401$ .  
74.  $h(73) = 21384 + 292 + 1 = 21609$  ו-  $k(73) = 10692 + 1 = 10693$ .  
75.  $h(74) = 21976 + 296 + 1 = 22201$  ו-  $k(74) = 10988 + 1 = 10989$ .  
76.  $h(75) = 22576 + 300 + 1 = 22801$  ו-  $k(75) = 11288 + 1 = 11289$ .  
77.  $h(76) = 23184 + 304 + 1 = 23409$  ו-  $k(76) = 11592 + 1 = 11593$ .  
78.  $h(77) = 23800 + 308 + 1 = 24025$  ו-  $k(77) = 11900 + 1 = 11901$ .  
79.  $h(78) = 24424 + 312 + 1 = 24649$  ו-  $k(78) = 12212 + 1 = 12213$ .  
80.  $h(79) = 25056 + 316 + 1 = 25281$  ו-  $k(79) = 12528 + 1 = 12529$ .  
81.  $h(80) = 25700 + 320 + 1 = 25921$  ו-  $k(80) = 12848 + 1 = 12849$ .  
82.  $h(81) = 26356 + 324 + 1 = 26569$  ו-  $k(81) = 13172 + 1 = 13173$ .  
83.  $h(82) = 27024 + 328 + 1 = 27225$  ו-  $k(82) = 13500 + 1 = 13501$ .  
84.  $h(83) = 27704 + 332 + 1 = 27889$  ו-  $k(83) = 13832 + 1 = 13833$ .  
85.  $h(84) = 28396 + 336 + 1 = 28561$  ו-  $k(84) = 14168 + 1 = 14169$ .  
86.  $h(85) = 29100 + 340 + 1 = 29249$  ו-  $k(85) = 14508 + 1 = 14509$ .  
87.  $h(86) = 29816 + 344 + 1 = 29945$  ו-  $k(86) = 14852 + 1 = 14853$ .  
88.  $h(87) = 30544 + 348 + 1 = 30649$  ו-  $k(87) = 15200 + 1 = 15201$ .  
89.  $h(88) = 31284 + 352 + 1 = 31357$  ו-  $k(88) = 15552 + 1 = 15553$ .  
90.  $h(89) = 32036 + 356 + 1 = 32069$  ו-  $k(89) = 15908 + 1 = 15909$ .  
91.  $h(90) = 32800 + 360 + 1 = 32781$  ו-  $k(90) = 16268 + 1 = 16269$ .  
92.  $h(91) = 33576 + 364 + 1 = 33501$  ו-  $k(91) = 16632 + 1 = 16633$ .  
93.  $h(92) = 34364 + 368 + 1 = 34225$  ו-  $k(92) = 17000 + 1 = 17001$ .  
94.  $h(93) = 35164 + 372 + 1 = 34953$  ו-  $k(93) = 17372 + 1 = 17373$ .  
95.  $h(94) = 35976 + 376 + 1 = 35689$  ו-  $k(94) = 17748 + 1 = 17749$ .  
96.  $h(95) = 36800 + 380 + 1 = 36429$  ו-  $k(95) = 18128 + 1 = 18129$ .  
97.  $h(96) = 37636 + 384 + 1 = 37173$  ו-  $k(96) = 18512 + 1 = 18513$ .  
98.  $h(97) = 38484 + 388 + 1 = 37921$  ו-  $k(97) = 18900 + 1 = 18901$ .  
99.  $h(98) = 39344 + 392 + 1 = 38673$  ו-  $k(98) = 19292 + 1 = 19293$ .  
100.  $h(99) = 40216 + 396 + 1 = 39429$  ו-  $k(99) = 19688 + 1 = 19689$ .  
101.  $h(100) = 41100 + 400 + 1 = 40189$  ו-  $k(100) = 20088 + 1 = 20089$ .











































