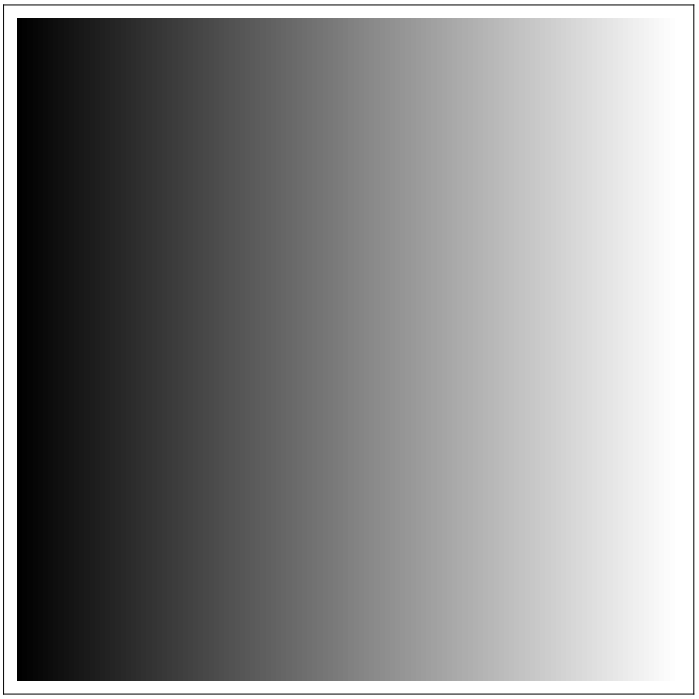
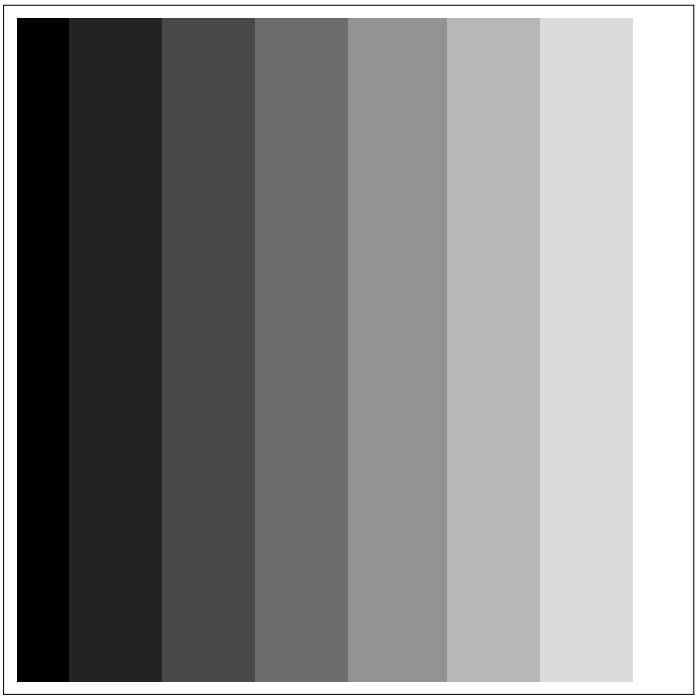
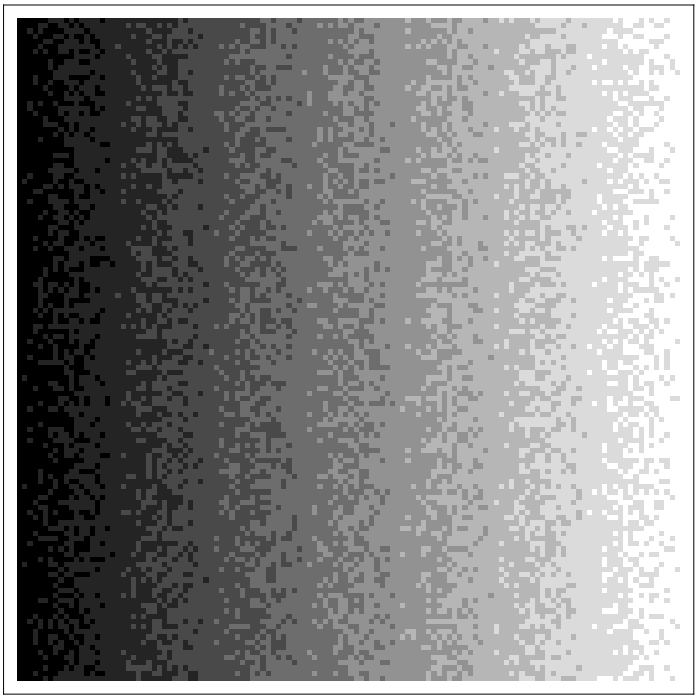
```
SetDirectory@NotebookDirectory[];
QuantizeBits[x_, bits_, dither_: 0] :=
 Clip[Round[x * (Power[2, bits] - 1) + dither] / (Power[2, bits] - 1)]
remaptri[v_] = { √(2 v) - 1        v ≤ 1/2
                 1 - √(2 - 2 v)    v > 1/2 ;

SampleArrayWithWrap[arr_, x_, y_] :=
 Module[{dims = Dimensions[arr]}, arr[[Mod[x, dims[[1]], 1], Mod[y, dims[[2]], 1]]]]
origSignal = Table[x / 128, {y, 0, 127}, {x, 0, 127}];
ArrayPlot[origSignal, ColorFunction → GrayLevel]
```



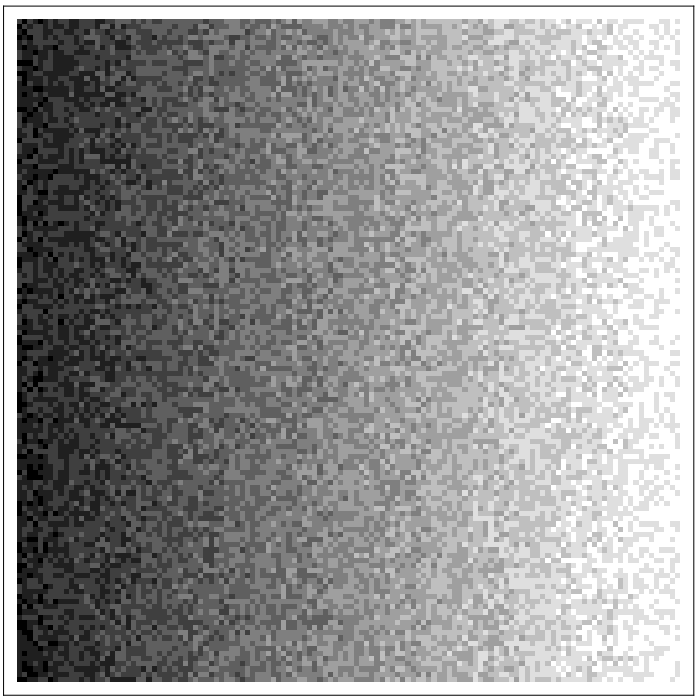
```
ArrayPlot[QuantizeBits[#1, 3] & /@ origSignal, ColorFunction → GrayLevel]
```



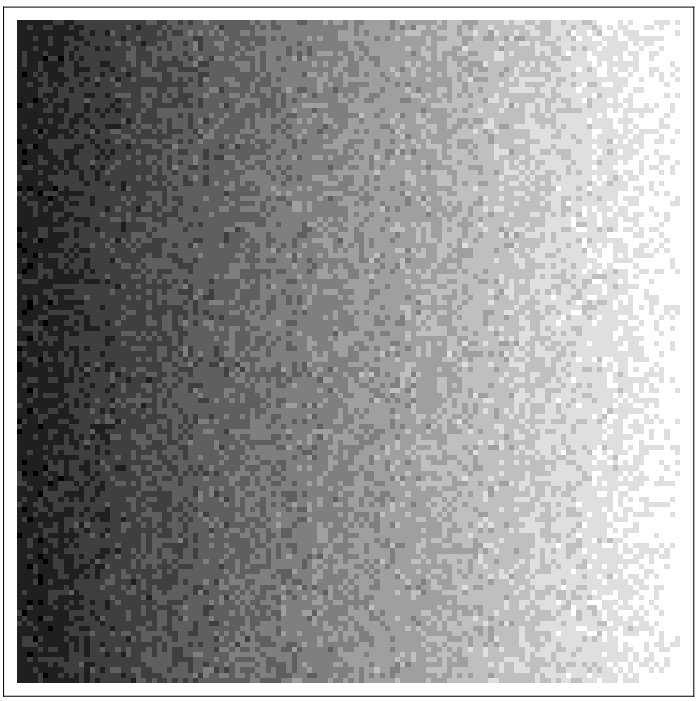
```
ditheredWhite = Map[QuantizeBits[#1, 3, RandomReal[] - 0.5] &, origSignal, {2}];
ArrayPlot[ditheredWhite, ColorFunction → GrayLevel]
```



```
ArrayPlot[Map[QuantizeBits[#1, 3, (RandomReal[] - 0.5) * 2] &, origSignal, {2}],
 ColorFunction → GrayLevel]
```

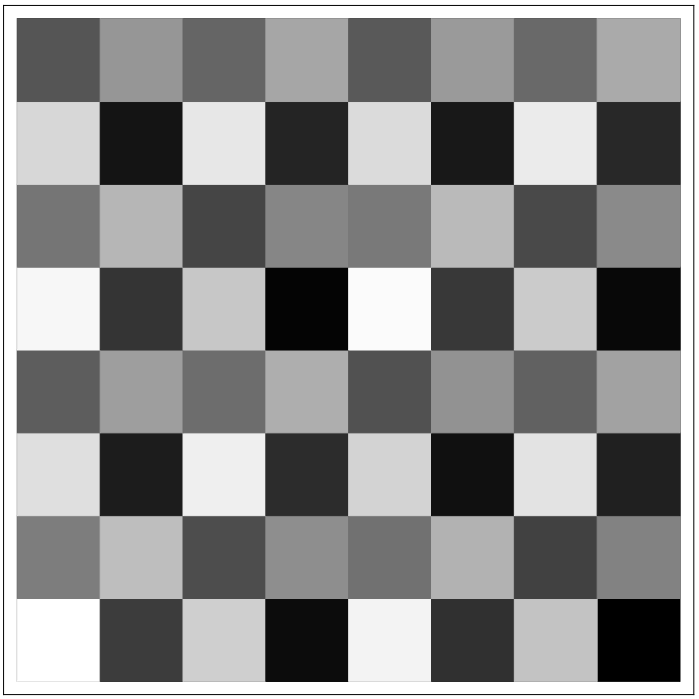


```
ArrayPlot[Map[QuantizeBits[#1, 3, (RandomReal[] + RandomReal[] - 1)] &,
  origSignal, {2}], ColorFunction → GrayLevel]
```

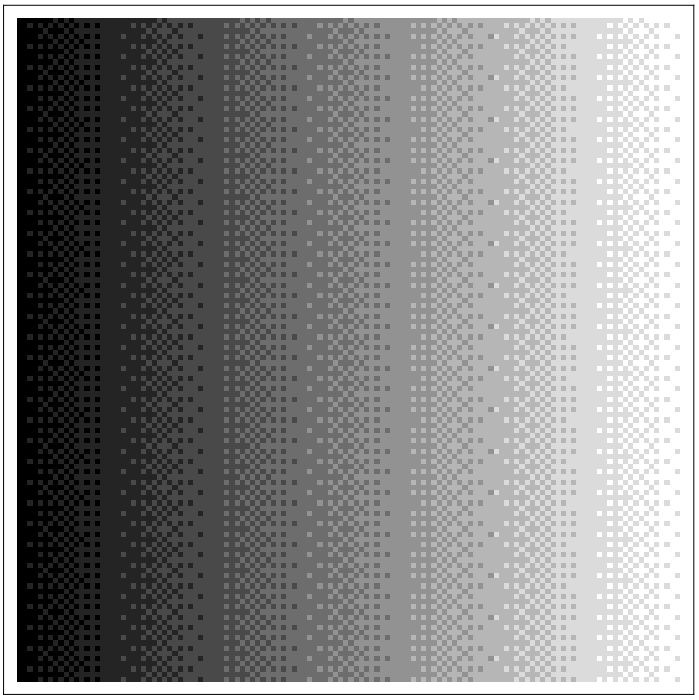


```
Bayer[x_, y_, level_] :=
 Mod[Mod[BitShiftRight[x, level], 2] + 1 + 2 * Mod[BitShiftRight[y, level], 2], 4] +
  If[level == 0, 0, 4 * Bayer[x, y, level - 1]]
bayer3 = Table[Bayer[x, y, 2], {y, 0, 7}, {x, 0, 7}] / 63;
bayer6 = Table[Bayer[x, y, 5], {y, 0, 63}, {x, 0, 63}] / (64 * 64 - 1);

ditheredBayer = MapIndexed[
   QuantizeBits[#1, 3, SampleArrayWithWrap[bayer3, #2[[1]], #2[[2]]] - 0.5] &,
   origSignal, {2}];
```

```
ArrayPlot[bayer3, ColorFunction → GrayLevel]
```

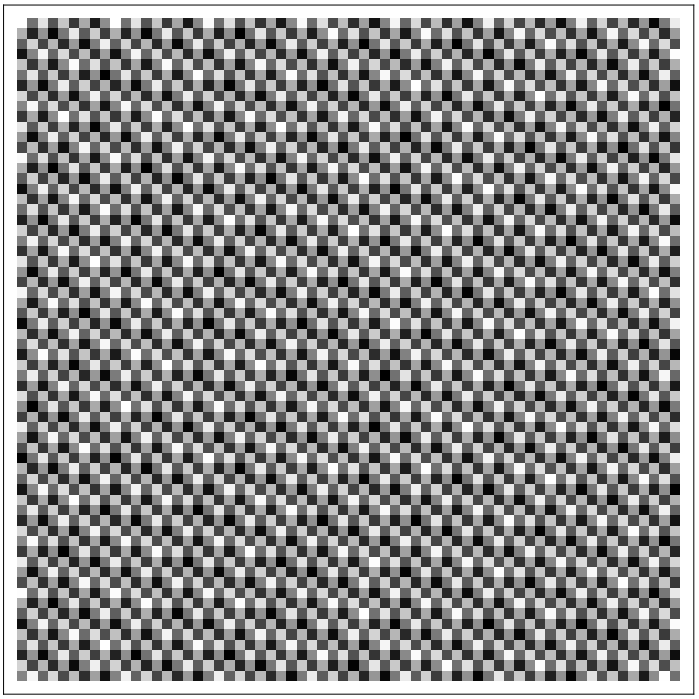


```
ArrayPlot[ditheredBayer, ColorFunction → GrayLevel]
```

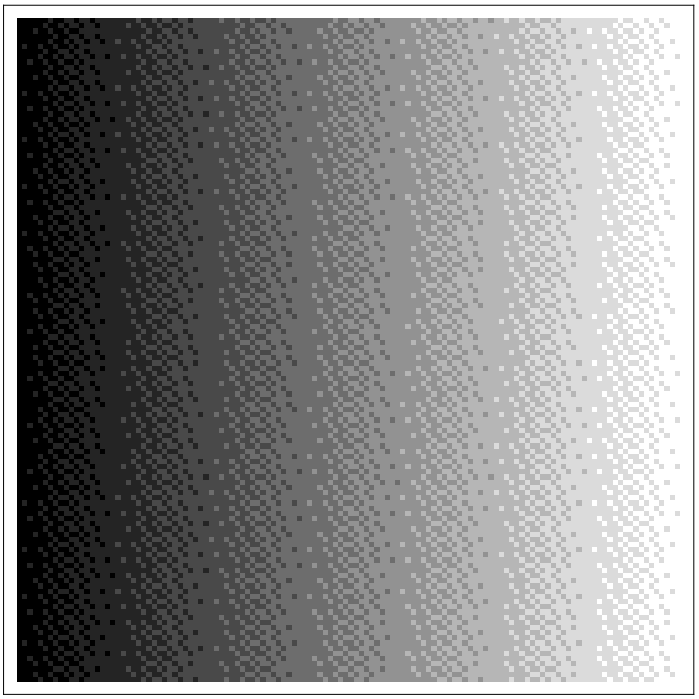


```
InterleavedGradientNoise[x_, y_] :=
 FractionalPart[52.982 918 9 * FractionalPart[0.067 110 56 * x + 0.005 837 15 * y]]
```

```
ArrayPlot[Table[InterleavedGradientNoise[x, y], {y, 0, 63}, {x, 0, 63}]]
```



```
ditheredInterleaved =
  MapIndexed[QuantizeBits[#1, 3, InterleavedGradientNoise[#2[[1]], #2[[2]]] - 0.5] &,
   origSignal, {2}];
ArrayPlot[ditheredInterleaved, ColorFunction → GrayLevel]
```



```
blueNoise64 =
  {{0.491 699 22, 0.178 710 94, 0.342 041 02, 0.852 050 78, 0.500 488 28, 0.112 060 55,
    0.873 046 88, 0.217 773 44, 0.621 826 17, 0.347 167 97, 0.842 285 16, 0.570 800 78,
    0.389 404 30, 0.286 132 81, 0.982 177 73, 0.832 519 53, 0.293 457 03, 0.198 486 33,
    0.985 107 42, 0.802 734 38, 0.588 867 19, 0.165 039 06, 0.604 248 05, 0.758 789 06,
    0.343 505 86, 0.602 294 92, 0.848 876 95, 0.234 863 28, 0.833 740 23, 0.109 619 14,
    0.916 748 05, 0.596 435 55, 0.196 044 92, 0.466 308 59, 0.875 488 28, 0.670 410 16,
    0.161 621 09, 0.040 039 06, 0.333 740 23, 0.873 291 02, 0.645 751 95, 0.289 062 50,
    0.457 031 25, 0.650 390 62, 0.290 527 34, 0.796 386 72, 0.598 876 95, 0.383 056 64,
    0.108 154 30, 0.629 882 81, 0.858 398 44, 0.201 660 16, 0.129 150 39, 0.608 886 72,
    0.242 187 50, 0.112 792 97, 0.674 804 69, 0.570 068 36, 0.911 865 23,
    0.197 509 77, 0.512 207 03, 0.837 402 34, 0.026 367 19, 0.444 335 94},
   {0.943 115 23, 0.577 392 58, 0.777 587 89, 0.212 646 48, 0.992 675 78,
    0.669 677 73, 0.402 832 03, 0.006 835 94, 0.675 537 11, 0.102 050 78, 0.453 369 14,
    0.959 960 94, 0.511 230 47, 0.857 910 16, 0.073 486 33, 0.562 988 28, 0.158 935 55,
    0.532 958 98, 0.449 462 89, 0.343 994 14, 0.945 800 78, 0.012 939 45, 0.774 902 34,
    0.997 558 59, 0.104 003 91, 0.479 492 19, 0.777 343 75, 0.036 865 23, 0.466 552 73,
    0.695 800 78, 0.349 609 38, 0.809 082 03, 0.621 093 75, 0.056 396 48, 0.520 996 09,
    0.223 144 53, 0.981 201 17, 0.410 644 53, 0.666 748 05, 0.110 595 70, 0.932 373 05,
    0.381 835 94, 0.002 685 55, 0.803 222 66, 0.608 154 30, 0.240 722 66, 0.972 656 25,
    0.023 437 50, 0.840 576 17, 0.356 201 17, 0.997 070 31, 0.499 511 72, 0.715 576 17,
    0.022 705 08, 0.465 820 31, 0.967 041 02, 0.790 039 06, 0.019 775 39, 0.373 046 88,
```

```
 0.113 037 11, 0.304 687 50, 0.104 248 05, 0.982 421 88, 0.238 281 25},
{0.756 591 80, 0.062 011 72, 0.532 714 84, 0.628 173 83, 0.369 873 05,
 0.290 039 06, 0.575 927 73, 0.249 755 86, 0.827 392 58, 0.298 095 70, 0.708 496 09,
 0.175 781 25, 0.598 144 53, 0.701 171 88, 0.399 902 34, 0.090 820 31, 0.671 630 86,
 0.057 617 19, 0.915 283 20, 0.220 947 27, 0.615 234 38, 0.385 742 19, 0.490 722 66,
 0.432 373 05, 0.260 009 77, 0.626 464 84, 0.332 031 25, 0.927 978 52, 0.642 578 12,
 0.311 767 58, 0.978 271 48, 0.169 189 45, 0.410 156 25, 0.933 349 61, 0.272 216 80,
 0.718 017 58, 0.810 302 73, 0.764 404 30, 0.239 257 81, 0.491 210 94, 0.640 625 00,
 0.182 617 19, 0.531 250 00, 0.126 708 98, 0.978 027 34, 0.462 646 48, 0.197 021 48,
 0.674 560 55, 0.444 824 22, 0.188 964 84, 0.274 169 92, 0.817 871 09, 0.575 683 59,
 0.302 978 52, 0.794 189 45, 0.262 451 17, 0.466 796 88, 0.285 156 25, 0.766 845 70,
 0.964 111 33, 0.616 699 22, 0.382 568 36, 0.631 591 80, 0.388 183 59},
{0.887 451 17, 0.327 636 72, 0.180 419 92, 0.847 900 39, 0.934 814 45,
 0.117 919 92, 0.956 787 11, 0.773 437 50, 0.451 171 88, 0.970 214 84, 0.864 501 95,
 0.005 371 09, 0.372 314 45, 0.986 816 41, 0.226 074 22, 0.763 916 02, 0.447 753 91,
 0.836 914 06, 0.321 533 20, 0.696 044 92, 0.104 492 19, 0.852 294 92, 0.722 656 25,
 0.161 132 81, 0.047 363 28, 0.947 753 91, 0.740 966 80, 0.125 732 42, 0.184 814 45,
 0.851 318 36, 0.475 341 80, 0.302 734 38, 0.005 615 23, 0.635 742 19, 0.892 822 27,
 0.431 884 77, 0.264 648 44, 0.516 601 56, 0.041 503 91, 0.332 763 67, 0.811 035 16,
 0.884 521 48, 0.654 785 16, 0.421 875 00, 0.320 068 36, 0.034 667 97, 0.553 222 66,
 0.770 751 95, 0.426 269 53, 0.095 458 98, 0.712 158 20, 0.365 234 38, 0.939 453 12,
 0.184 570 31, 0.533 935 55, 0.680 664 06, 0.908 447 27, 0.168 212 89, 0.501 220 70,
 0.691 162 11, 0.427 978 52, 0.793 212 89, 0.829 345 70, 0.066 650 39},
{0.476 562 50, 0.400 634 77, 0.647 460 94, 0.080 078 12, 0.461 425 78,
 0.684 326 17, 0.213 134 77, 0.073 242 19, 0.524 414 06, 0.123 291 02, 0.489 990 23,
 0.260 986 33, 0.320 556 64, 0.584 960 94, 0.853 759 77, 0.535 156 25, 0.375 976 56,
 0.083 496 09, 0.739 746 09, 0.526 123 05, 0.079 101 56, 0.814 697 27, 0.224 121 09,
 0.663 085 94, 0.556 152 34, 0.856 689 45, 0.452 636 72, 0.363 525 39, 0.765 380 86,
 0.552 001 95, 0.119 628 91, 0.730 712 89, 0.747 558 59, 0.481 201 17, 0.077 148 44,
 0.583 251 95, 0.078 613 28, 0.797 851 56, 0.873 779 30, 0.705 322 27, 0.408 691 41,
 0.047 119 14, 0.217 285 16, 0.801 757 81, 0.746 093 75, 0.982 666 02, 0.840 332 03,
 0.360 595 70, 0.934 326 17, 0.820 556 64, 0.598 388 67, 0.076 904 30, 0.497 802 73,
 0.103 027 34, 0.620 117 19, 0.375 000 00, 0.203 369 14, 0.590 087 89, 0.894 531 25,
 0.231 689 45, 0.098 632 81, 0.292 236 33, 0.139 892 58, 0.652 343 75},
{0.250 488 28, 0.787 841 80, 0.145 263 67, 0.829 101 56, 0.518 798 83,
 0.268 310 55, 0.709 472 66, 0.645 263 67, 0.340 820 31, 0.762 695 31, 0.651 367 19,
 0.895 019 53, 0.794 921 88, 0.062 744 14, 0.177 490 23, 0.812 255 86, 0.317 138 67,
 0.498 046 88, 0.888 916 02, 0.653 564 45, 0.288 574 22, 0.490 966 80, 0.989 501 95,
 0.366 455 08, 0.214 355 47, 0.513 427 73, 0.096 191 41, 0.398 681 64, 0.958 251 95,
 0.026 855 47, 0.239 746 09, 0.912 841 80, 0.336 181 64, 0.156 005 86, 0.861 328 12,
 0.254 882 81, 0.924 804 69, 0.592 529 30, 0.305 175 78, 0.513 671 88, 0.968 994 14,
 0.346 435 55, 0.661 865 23, 0.488 525 39, 0.377 441 41, 0.134 521 48, 0.635 253 91,
 0.078 857 42, 0.664 550 78, 0.008 056 64, 0.296 386 72, 0.397 949 22, 0.856 445 31,
 0.721 435 55, 0.954 589 84, 0.029 785 16, 0.764 160 16, 0.068 359 38, 0.340 332 03,
 0.555 175 78, 0.949 707 03, 0.493 408 20, 0.760 253 91, 0.970 458 98},
```

```
{0.558 593 75, 0.944 580 08, 0.360 839 84, 0.191 894 53, 0.601 318 36,
 0.027 099 61, 0.893 310 55, 0.395 751 95, 0.931 152 34, 0.197 998 05, 0.579 101 56,
 0.111 328 12, 0.400 390 62, 0.640 869 14, 0.673 339 84, 0.039 550 78, 0.890 136 72,
 0.256 591 80, 0.059 082 03, 0.959 228 52, 0.272 705 08, 0.413 818 36, 0.888 183 59,
 0.614 257 81, 0.844 482 42, 0.136 474 61, 0.685 791 02, 0.753 662 11, 0.262 695 31,
 0.817 138 67, 0.451 660 16, 0.829 589 84, 0.561 767 58, 0.659 423 83, 0.392 578 12,
 0.737 548 83, 0.373 779 30, 0.194 335 94, 0.802 001 95, 0.006 347 66, 0.277 099 61,
 0.188 476 56, 0.789 550 78, 0.962 158 20, 0.010 498 05, 0.240 966 80, 0.442 626 95,
 0.222 656 25, 0.472 412 11, 0.616 210 94, 0.909 667 97, 0.224 853 52, 0.052 978 52,
 0.306 396 48, 0.542 724 61, 0.822 021 48, 0.421 630 86, 0.938 720 70, 0.625 976 56,
 0.038 085 94, 0.749 023 44, 0.374 755 86, 0.586 425 78, 0.018 554 69},
{0.755 615 23, 0.795 898 44, 0.669 189 45, 0.891 113 28, 0.261 474 61,
 0.811 523 44, 0.536 376 95, 0.155 517 58, 0.497 314 45, 0.009 277 34, 0.375 732 42,
 0.996 582 03, 0.297 363 28, 0.230 224 61, 0.386 230 47, 0.210 937 50, 0.595 947 27,
 0.827 880 86, 0.526 611 33, 0.191 162 11, 0.707 519 53, 0.330 078 12, 0.103 759 77,
 0.730 468 75, 0.470 214 84, 0.927 246 09, 0.284 912 11, 0.890 380 86, 0.590 820 31,
 0.656 005 86, 0.074 707 03, 0.208 251 95, 0.456 542 97, 0.991 455 08, 0.127 929 69,
 0.012 207 03, 0.610 107 42, 0.978 515 62, 0.427 001 95, 0.657 226 56, 0.533 447 27,
 0.892 578 12, 0.097 656 25, 0.350 097 66, 0.531 005 86, 0.600 830 08, 0.785 156 25,
 0.932 617 19, 0.260 498 05, 0.736 328 12, 0.426 757 81, 0.584 716 80, 0.792 236 33,
 0.240 234 38, 0.676 025 39, 0.335 205 08, 0.170 410 16, 0.797 119 14, 0.254 394 53,
 0.520 751 95, 0.135 009 77, 0.286 865 23, 0.822 753 91, 0.314 697 27},
{0.213 378 91, 0.093 261 72, 0.517 333 98, 0.070 800 78, 0.380 371 09,
 0.618 408 20, 0.215 332 03, 0.942 382 81, 0.675 292 97, 0.734 619 14, 0.127 197 27,
 0.758 300 78, 0.576 416 02, 0.837 890 62, 0.883 056 64, 0.487 060 55, 0.703 369 14,
 0.352 294 92, 0.719 970 70, 0.141 601 56, 0.824 951 17, 0.930 419 92, 0.495 605 47,
 0.025 146 48, 0.216 064 45, 0.645 507 81, 0.430 908 20, 0.116 455 08, 0.399 169 92,
 0.193 847 66, 0.921 630 86, 0.719 238 28, 0.382 324 22, 0.882 080 08, 0.507 812 50,
 0.261 230 47, 0.567 382 81, 0.153 808 59, 0.783 935 55, 0.113 769 53, 0.404 296 88,
 0.723 876 95, 0.167 724 61, 0.709 716 80, 0.439 208 98, 0.980 468 75, 0.867 187 50,
 0.325 683 59, 0.030 029 30, 0.849 609 38, 0.170 654 30, 0.975 341 80, 0.050 292 97,
 0.406 250 00, 0.879 882 81, 0.509 277 34, 0.020 751 95, 0.369 140 62, 0.707 275 39,
 0.430 175 78, 0.907 714 84, 0.639 404 30, 0.062 255 86, 0.871 826 17},
{0.323 730 47, 0.268 798 83, 0.617 675 78, 0.752 929 69, 0.979 003 91,
 0.341 552 73, 0.089 111 33, 0.784 423 83, 0.258 056 64, 0.854 980 47, 0.500 976 56,
 0.406 738 28, 0.612 060 55, 0.022 949 22, 0.169 433 59, 0.359 130 86, 0.113 281 25,
 0.988 037 11, 0.260 742 19, 0.450 439 45, 0.617 919 92, 0.196 777 34, 0.366 943 36,
 0.737 792 97, 0.981 445 31, 0.370 605 47, 0.045 166 02, 0.799 804 69, 0.248 779 30,
 0.794 433 59, 0.563 720 70, 0.135 986 33, 0.668 945 31, 0.379 394 53, 0.692 626 95,
 0.101 074 22, 0.805 419 92, 0.910 156 25, 0.309 814 45, 0.952 636 72, 0.303 466 80,
 0.587 158 20, 0.857 666 02, 0.016 845 70, 0.330 810 55, 0.730 957 03, 0.106 933 59,
 0.626 708 98, 0.542 968 75, 0.195 556 64, 0.391 357 42, 0.468 994 14, 0.713 867 19,
 0.574 951 17, 0.193 359 38, 0.974 609 38, 0.606 445 31, 0.637 451 17, 0.976 562 50,
 0.142 089 84, 0.367 187 50, 0.770 263 67, 0.970 703 12, 0.467 529 30},
{0.708 007 81, 0.015 625 00, 0.405 761 72, 0.807 617 19, 0.268 554 69,
```

```
 0.716 552 73, 0.430 664 06, 0.469 238 28, 0.571 044 92, 0.397 705 08, 0.967 773 44,
 0.084 472 66, 0.219 482 42, 0.766 357 42, 0.927 001 95, 0.547 363 28, 0.824 218 75,
 0.621 337 89, 0.042 236 33, 0.538 085 94, 0.995 361 33, 0.006 591 80, 0.816 162 11,
 0.311 523 44, 0.553 466 80, 0.834 716 80, 0.496 093 75, 0.634 277 34, 0.997 802 73,
 0.461 669 92, 0.354 003 91, 0.880 126 95, 0.238 769 53, 0.024 658 20, 0.940 185 55,
 0.748 779 30, 0.265 136 72, 0.420 654 30, 0.589 355 47, 0.656 982 42, 0.028 076 17,
 0.824 462 89, 0.456 054 69, 0.382 812 50, 0.559 570 31, 0.231 933 59, 0.419 921 88,
 0.820 068 36, 0.416 259 77, 0.941 894 53, 0.690 673 83, 0.630 371 09, 0.287 109 38,
 0.455 810 55, 0.748 046 88, 0.075 927 73, 0.482 910 16, 0.886 962 89, 0.038 574 22,
 0.320 312 50, 0.609 863 28, 0.048 339 84, 0.183 593 75, 0.513 183 59},
{0.858 154 30, 0.546 386 72, 0.916 503 91, 0.203 857 42, 0.624 511 72,
 0.020 019 53, 0.938 476 56, 0.738 037 11, 0.027 587 89, 0.178 955 08, 0.335 449 22,
 0.567 871 09, 0.271 972 66, 0.686 279 30, 0.111 816 41, 0.463 867 19, 0.243 896 48,
 0.753 173 83, 0.567 626 95, 0.290 771 48, 0.810 546 88, 0.115 966 80, 0.492 675 78,
 0.881 103 52, 0.235 107 42, 0.144 531 25, 0.010 253 91, 0.915 527 34, 0.218 994 14,
 0.094 726 56, 0.697 753 91, 0.116 943 36, 0.494 384 77, 0.622 558 59, 0.200 683 59,
 0.607 666 02, 0.494 140 62, 0.005 126 95, 0.828 613 28, 0.173 095 70, 0.378 173 83,
 0.241 943 36, 0.176 513 67, 0.781 982 42, 0.147 949 22, 0.998 291 02, 0.177 001 95,
 0.751 953 12, 0.054 199 22, 0.428 466 80, 0.261 718 75, 0.902 587 89, 0.107 666 02,
 0.828 125 00, 0.151 123 05, 0.565 917 97, 0.269 042 97, 0.169 677 73, 0.785 888 67,
 0.493 652 34, 0.815 185 55, 0.413 330 08, 0.666 015 62, 0.919 189 45},
{0.279 296 88, 0.753 906 25, 0.093 505 86, 0.510 009 77, 0.473 632 81,
 0.152 343 75, 0.405 517 58, 0.280 029 30, 0.819 824 22, 0.904 785 16, 0.715 332 03,
 0.858 886 72, 0.365 722 66, 0.800 781 25, 0.502 441 41, 0.906 738 28, 0.381 103 52,
 0.013 671 88, 0.185 058 59, 0.686 035 16, 0.479 980 47, 0.427 734 38, 0.157 226 56,
 0.633 056 64, 0.743 896 48, 0.440 917 97, 0.735 351 56, 0.354 248 05, 0.643 554 69,
 0.537 841 80, 0.897 460 94, 0.410 888 67, 0.743 408 20, 0.171 630 86, 0.939 941 41,
 0.421 386 72, 0.281 250 00, 0.132 324 22, 0.672 363 28, 0.927 490 23, 0.504 638 67,
 0.576 660 16, 0.896 484 38, 0.951 416 02, 0.694 580 08, 0.356 933 59, 0.597 900 39,
 0.250 244 14, 0.930 908 20, 0.790 283 20, 0.206 054 69, 0.001 708 98, 0.654 052 73,
 0.251 708 98, 0.956 542 97, 0.688 720 70, 0.860 839 84, 0.346 191 41, 0.105 224 61,
 0.696 777 34, 0.230 468 75, 0.973 388 67, 0.315 185 55, 0.125 488 28},
{0.446 777 34, 0.591 064 45, 0.732 177 73, 0.261 962 89, 0.867 675 78,
 0.979 980 47, 0.675 048 83, 0.371 826 17, 0.077 392 58, 0.584 472 66, 0.579 833 98,
 0.146 972 66, 0.503 173 83, 0.187 744 14, 0.028 808 59, 0.627 441 41, 0.404 785 16,
 0.813 476 56, 0.197 753 91, 0.938 964 84, 0.046 142 58, 0.604 492 19, 0.960 937 50,
 0.190 185 55, 0.517 822 27, 0.967 529 30, 0.321 777 34, 0.259 033 20, 0.854 003 91,
 0.152 832 03, 0.586 914 06, 0.322 998 05, 0.035 400 39, 0.790 527 34, 0.229 248 05,
 0.595 458 98, 0.885 498 05, 0.303 955 08, 0.714 111 33, 0.222 900 39, 0.066 406 25,
 0.770 507 81, 0.622 070 31, 0.108 886 72, 0.481 445 31, 0.652 099 61, 0.838 134 77,
 0.072 998 05, 0.490 234 38, 0.621 582 03, 0.386 962 89, 0.529 296 88, 0.525 634 77,
 0.783 691 41, 0.348 876 95, 0.410 400 39, 0.010 742 19, 0.548 095 70, 0.668 212 89,
 0.367 919 92, 0.433 105 47, 0.899 658 20, 0.504 394 53, 0.031 494 14},
{0.942 871 09, 0.171 142 58, 0.008 544 92, 0.418 457 03, 0.732 910 16,
 0.559 814 45, 0.756 347 66, 0.511 474 61, 0.965 087 89, 0.202 148 44, 0.793 457 03,
```

```
 0.034 423 83, 0.856 933 59, 0.940 673 83, 0.769 531 25, 0.266 113 28, 0.750 244 14,
 0.973 876 95, 0.566 650 39, 0.385 986 33, 0.742 675 78, 0.291 259 77, 0.678 710 94,
 0.370 117 19, 0.076 660 16, 0.862 792 97, 0.607 177 73, 0.114 013 67, 0.492 187 50,
 0.756 835 94, 0.068 847 66, 0.926 269 53, 0.458 740 23, 0.689 453 12, 0.381 347 66,
 0.751 464 84, 0.473 144 53, 0.937 255 86, 0.595 214 84, 0.431 640 62, 0.856 201 17,
 0.277 343 75, 0.485 839 84, 0.003 417 97, 0.363 037 11, 0.215 820 31, 0.946 289 06,
 0.678 222 66, 0.253 173 83, 0.926 025 39, 0.648 925 78, 0.794 677 73, 0.053 466 80,
 0.964 355 47, 0.165 771 48, 0.583 007 81, 0.847 412 11, 0.294 433 59, 0.929 443 36,
 0.176 269 53, 0.131 835 94, 0.755 859 38, 0.209 472 66, 0.681 884 77},
{0.330 322 27, 0.704 101 56, 0.836 425 78, 0.203 613 28, 0.390 136 72,
 0.339 111 33, 0.088 867 19, 0.169 921 88, 0.438 232 42, 0.536 865 23, 0.258 544 92,
 0.299 804 69, 0.418 945 31, 0.694 091 80, 0.467 041 02, 0.072 265 62, 0.479 003 91,
 0.092 773 44, 0.659 179 69, 0.262 939 45, 0.104 736 33, 0.849 121 09, 0.935 791 02,
 0.331 787 11, 0.735 107 42, 0.351 562 50, 0.043 945 31, 0.704 345 70, 0.998 779 30,
 0.422 607 42, 0.635 986 33, 0.247 558 59, 0.565 429 69, 0.898 681 64, 0.150 146 48,
 0.839 599 61, 0.176 025 39, 0.008 300 78, 0.362 548 83, 0.719 482 42, 0.304 199 22,
 0.084 228 52, 0.706 054 69, 0.306 640 62, 0.852 539 06, 0.056 640 62, 0.470 947 27,
 0.318 847 66, 0.759 277 34, 0.022 216 80, 0.352 783 20, 0.131 591 80, 0.278 320 31,
 0.531 494 14, 0.211 181 64, 0.808 105 47, 0.467 285 16, 0.665 283 20, 0.985 595 70,
 0.710 937 50, 0.423 339 84, 0.614 013 67, 0.368 164 06, 0.833 984 38},
{0.115 478 52, 0.524 902 34, 0.317 382 81, 0.899 414 06, 0.047 851 56,
 0.710 449 22, 0.245 361 33, 0.983 154 30, 0.887 695 31, 0.646 972 66, 0.108 398 44,
 0.922 119 14, 0.634 765 62, 0.140 380 86, 0.262 207 03, 0.348 388 67, 0.860 595 70,
 0.434 082 03, 0.993 164 06, 0.359 375 00, 0.502 929 69, 0.131 103 52, 0.530 029 30,
 0.028 564 45, 0.158 447 27, 0.616 455 08, 0.657 714 84, 0.227 539 06, 0.502 685 55,
 0.233 642 58, 0.800 537 11, 0.950 683 59, 0.181 152 34, 0.338 134 77, 0.451 904 30,
 0.069 335 94, 0.577 636 72, 0.323 974 61, 0.111 083 98, 0.865 966 80, 0.632 324 22,
 0.966 796 88, 0.916 015 62, 0.627 197 27, 0.361 083 98, 0.786 865 23, 0.549 560 55,
 0.841 064 45, 0.098 876 95, 0.489 746 09, 0.986 572 27, 0.718 505 86, 0.771 972 66,
 0.456 787 11, 0.893 554 69, 0.020 996 09, 0.148 437 50, 0.291 992 19, 0.547 607 42,
 0.001 953 12, 0.310 791 02, 0.529 052 73, 0.061 035 16, 0.573 730 47},
{0.924 072 27, 0.662 109 38, 0.133 789 06, 0.517 578 12, 0.921 386 72,
 0.604 736 33, 0.432 861 33, 0.664 794 92, 0.312 988 28, 0.392 822 27, 0.771 728 52,
 0.585 693 36, 0.231 445 31, 0.989 990 23, 0.564 453 12, 0.688 964 84, 0.812 744 14,
 0.165 527 34, 0.652 587 89, 0.896 972 66, 0.741 943 36, 0.429 199 22, 0.774 658 20,
 0.893 798 83, 0.401 855 47, 0.831 054 69, 0.376 464 84, 0.883 789 06, 0.717 041 02,
 0.092 285 16, 0.466 064 45, 0.334 228 52, 0.038 330 08, 0.623 779 30, 0.760 498 05,
 0.908 691 41, 0.799 560 55, 0.517 089 84, 0.774 169 92, 0.177 246 09, 0.560 058 59,
 0.173 339 84, 0.528 320 31, 0.132 568 36, 0.225 341 80, 0.929 931 64, 0.408 935 55,
 0.269 775 39, 0.679 931 64, 0.587 402 34, 0.117 431 64, 0.263 427 73, 0.644 287 11,
 0.897 949 22, 0.406 982 42, 0.613 525 39, 0.723 388 67, 0.440 673 83, 0.093 994 14,
 0.806 884 77, 0.168 945 31, 0.946 777 34, 0.845 703 12, 0.344 482 42},
{0.248 535 16, 0.002 929 69, 0.464 599 61, 0.748 291 02, 0.308 349 61,
 0.788 574 22, 0.026 611 33, 0.537 597 66, 0.887 939 45, 0.194 091 80, 0.081 054 69,
 0.889 160 16, 0.342 529 30, 0.787 109 38, 0.003 173 83, 0.379 638 67, 0.081 298 83,
```

```
 0.227 783 20, 0.312 744 14, 0.046 386 72, 0.626 220 70, 0.206 787 11, 0.377 685 55,
 0.977 539 06, 0.293 701 17, 0.533 691 41, 0.055 419 92, 0.939 208 98, 0.180 908 20,
 0.584 228 52, 0.957 763 67, 0.650 878 91, 0.869 140 62, 0.273 925 78, 0.677 490 23,
 0.145 019 53, 0.227 294 92, 0.999 267 58, 0.683 349 61, 0.329 101 56, 0.429 443 36,
 0.263 916 02, 0.825 195 31, 0.445 068 36, 0.685 302 73, 0.118 896 48, 0.641 357 42,
 0.091 796 88, 0.961 669 92, 0.828 369 14, 0.434 326 17, 0.403 076 17, 0.684 082 03,
 0.153 076 17, 0.073 730 47, 0.221 435 55, 0.880 615 23, 0.192 382 81, 0.972 167 97,
 0.589 599 61, 0.667 968 75, 0.268 066 41, 0.087 890 62, 0.763 671 88},
{0.473 876 95, 0.815 917 97, 0.942 626 95, 0.234 619 14, 0.407 226 56,
 0.973 144 53, 0.153 564 45, 0.644 042 97, 0.051 269 53, 0.678 955 08, 0.498 535 16,
 0.403 808 59, 0.030 761 72, 0.714 843 75, 0.521 240 23, 0.861 816 41, 0.483 154 30,
 0.603 271 48, 0.701 660 16, 0.135 253 91, 0.799 316 41, 0.925 292 97, 0.530 761 72,
 0.654 296 88, 0.068 115 23, 0.765 136 72, 0.265 380 86, 0.501 953 12, 0.764 892 58,
 0.374 267 58, 0.109 130 86, 0.531 982 42, 0.302 246 09, 0.934 082 03, 0.450 683 59,
 0.015 136 72, 0.573 974 61, 0.401 123 05, 0.126 464 84, 0.965 576 17, 0.052 734 38,
 0.865 722 66, 0.599 609 38, 0.006 103 52, 0.772 216 80, 0.329 833 98, 0.874 755 86,
 0.752 685 55, 0.388 671 88, 0.180 664 06, 0.677 734 38, 0.045 898 44, 0.928 710 94,
 0.275 390 62, 0.770 019 53, 0.462 158 20, 0.738 769 53, 0.632 812 50, 0.369 628 91,
 0.844 726 56, 0.488 281 25, 0.384 765 62, 0.718 261 72, 0.541 259 77},
{0.638 671 88, 0.166 992 19, 0.565 185 55, 0.044 433 59, 0.761 962 89,
 0.282 470 70, 0.599 365 23, 0.243 652 34, 0.371 093 75, 0.800 292 97, 0.976 318 36,
 0.507 568 36, 0.273 437 50, 0.638 427 73, 0.264 892 58, 0.096 923 83, 0.950 927 73,
 0.550 537 11, 0.861 572 27, 0.391 845 70, 0.602 783 20, 0.237 792 97, 0.138 183 59,
 0.190 917 97, 0.854 248 05, 0.658 447 27, 0.160 400 39, 0.702 148 44, 0.402 343 75,
 0.889 892 58, 0.251 464 84, 0.778 076 17, 0.032 226 56, 0.535 400 39, 0.725 830 08,
 0.357 666 02, 0.219 726 56, 0.867 919 92, 0.742 431 64, 0.634 521 48, 0.245 117 19,
 0.432 617 19, 0.774 414 06, 0.156 250 00, 0.521 972 66, 0.971 435 55, 0.380 615 23,
 0.568 359 38, 0.638 183 59, 0.874 267 58, 0.238 037 11, 0.757 568 36, 0.483 886 72,
 0.333 984 38, 0.908 203 12, 0.539 550 78, 0.029 541 02, 0.174 560 55, 0.246 826 17,
 0.428 710 94, 0.041 259 77, 0.762 451 17, 0.344 726 56, 0.144 287 11},
{0.849 365 23, 0.328 613 28, 0.463 623 05, 0.611 572 27, 0.894 042 97,
 0.459 228 52, 0.839 843 75, 0.989 013 67, 0.143 798 83, 0.762 939 45, 0.301 513 67,
 0.175 048 83, 0.948 974 61, 0.884 277 34, 0.572 265 62, 0.244 873 05, 0.394 775 39,
 0.872 802 73, 0.152 099 61, 0.272 460 94, 0.953 613 28, 0.463 134 77, 0.734 863 28,
 0.001 464 84, 0.295 654 30, 0.511 962 89, 0.979 736 33, 0.640 380 86, 0.039 306 64,
 0.173 828 12, 0.663 818 36, 0.933 593 75, 0.609 130 86, 0.167 236 33, 0.789 794 92,
 0.308 837 89, 0.731 445 31, 0.088 378 91, 0.525 390 62, 0.374 023 44, 0.931 396 48,
 0.531 738 28, 0.894 287 11, 0.311 279 30, 0.732 666 02, 0.033 447 27, 0.200 195 31,
 0.043 701 17, 0.504 150 39, 0.185 546 88, 0.014 160 16, 0.983 886 72, 0.616 943 36,
 0.535 644 53, 0.237 060 55, 0.813 720 70, 0.396 728 52, 0.996 093 75, 0.682 128 91,
 0.882 812 50, 0.120 117 19, 0.937 744 14, 0.599 853 52, 0.930 664 06},
{0.757 080 08, 0.142 333 98, 0.414 550 78, 0.850 830 08, 0.146 728 52,
 0.106 445 31, 0.545 898 44, 0.408 447 27, 0.906 005 86, 0.585 449 22, 0.683 105 47,
 0.716 308 59, 0.071 533 20, 0.412 109 38, 0.739 257 81, 0.093 750 00, 0.644 531 25,
 0.019 531 25, 0.724 365 23, 0.437 500 00, 0.214 843 75, 0.737 304 69, 0.387 207 03,
```

```
 0.586 181 64, 0.877 441 41, 0.328 857 42, 0.844 970 70, 0.258 300 78, 0.851 562 50,
 0.439 941 41, 0.750 000 00, 0.323 242 19, 0.460 449 22, 0.244 628 91, 0.850 585 94,
 0.434 570 31, 0.999 511 72, 0.139 404 30, 0.805 175 78, 0.031 738 28, 0.414 062 50,
 0.078 369 14, 0.232 666 02, 0.657 470 70, 0.409 912 11, 0.579 345 70, 0.240 478 52,
 0.954 101 56, 0.746 582 03, 0.793 945 31, 0.447 509 77, 0.372 070 31, 0.163 085 94,
 0.701 416 02, 0.087 158 20, 0.223 632 81, 0.593 750 00, 0.878 173 83, 0.089 355 47,
 0.554 931 64, 0.509 765 62, 0.305 664 06, 0.274 902 34, 0.045 410 16},
{0.969 482 42, 0.353 271 48, 0.684 570 31, 0.282 226 56, 0.528 808 59,
 0.226 562 50, 0.643 066 41, 0.010 986 33, 0.488 769 53, 0.071 777 34, 0.218 261 72,
 0.377 197 27, 0.915 771 48, 0.443 115 23, 0.819 335 94, 0.293 212 89, 0.974 853 52,
 0.316 406 25, 0.508 789 06, 0.831 787 11, 0.922 363 28, 0.596 923 83, 0.070 068 36,
 0.943 847 66, 0.527 832 03, 0.069 580 08, 0.581 787 11, 0.154 296 88, 0.484 130 86,
 0.589 843 75, 0.085 693 36, 0.385 253 91, 0.955 810 55, 0.134 765 62, 0.554 443 36,
 0.661 621 09, 0.205 810 55, 0.619 873 05, 0.282 714 84, 0.778 320 31, 0.582 763 67,
 0.708 984 38, 0.102 294 92, 0.918 212 89, 0.779 296 88, 0.324 707 03, 0.623 535 16,
 0.863 525 39, 0.342 285 16, 0.615 722 66, 0.063 476 56, 0.829 833 98, 0.527 343 75,
 0.716 064 45, 0.884 765 62, 0.489 501 95, 0.692 871 09, 0.290 283 20, 0.744 384 77,
 0.171 875 00, 0.791 748 05, 0.702 880 86, 0.481 689 45, 0.537 109 38},
{0.611 083 98, 0.031 005 86, 0.896 728 52, 0.067 138 67, 0.987 060 55,
 0.769 775 39, 0.720 947 27, 0.338 867 19, 0.259 765 62, 0.746 826 17, 0.899 902 34,
 0.446 533 20, 0.252 929 69, 0.685 058 59, 0.142 822 27, 0.500 732 42, 0.680 908 20,
 0.809 814 45, 0.071 044 92, 0.478 515 62, 0.009 765 62, 0.275 634 77, 0.417 724 61,
 0.209 960 94, 0.807 128 91, 0.748 535 16, 0.345 214 84, 0.968 750 00, 0.877 929 69,
 0.351 318 36, 0.945 556 64, 0.225 830 08, 0.680 175 78, 0.910 644 53, 0.035 888 67,
 0.812 500 00, 0.454 589 84, 0.554 687 50, 0.400 878 91, 0.996 826 17, 0.283 691 41,
 0.469 482 42, 0.838 378 91, 0.435 546 88, 0.072 753 91, 0.936 523 44, 0.099 853 52,
 0.431 396 48, 0.251 220 70, 0.749 267 58, 0.503 906 25, 0.296 142 58, 0.126 220 70,
 0.336 914 06, 0.039 794 92, 0.937 500 00, 0.333 251 95, 0.037 841 80, 0.593 017 58,
 0.218 017 58, 0.359 863 28, 0.948 242 19, 0.098 144 53, 0.177 978 52},
{0.300 292 97, 0.568 847 66, 0.436 767 58, 0.542 236 33, 0.195 800 78,
 0.379 150 39, 0.837 158 20, 0.250 976 56, 0.926 513 67, 0.560 302 73, 0.087 646 48,
 0.807 373 05, 0.980 957 03, 0.570 556 64, 0.025 390 62, 0.798 828 12, 0.336 669 92,
 0.607 421 88, 0.393 554 69, 0.729 492 19, 0.183 349 61, 0.687 011 72, 0.909 912 11,
 0.544 433 59, 0.160 888 67, 0.121 582 03, 0.563 476 56, 0.189 941 41, 0.703 613 28,
 0.024 169 92, 0.768 310 55, 0.561 279 30, 0.055 664 06, 0.623 291 02, 0.307 128 91,
 0.145 751 95, 0.253 906 25, 0.846 435 55, 0.687 988 28, 0.874 511 72, 0.207 275 39,
 0.697 265 62, 0.150 634 77, 0.566 894 53, 0.300 537 11, 0.207 031 25, 0.791 503 91,
 0.487 792 97, 0.046 875 00, 0.157 470 70, 0.986 083 98, 0.610 351 56, 0.914 550 78,
 0.646 484 38, 0.713 623 05, 0.170 898 44, 0.909 179 69, 0.562 744 14, 0.767 822 27,
 0.963 134 77, 0.243 408 20, 0.625 244 14, 0.484 863 28, 0.788 818 36},
{0.714 599 61, 0.932 861 33, 0.218 505 86, 0.830 322 27, 0.107 421 88,
 0.859 375 00, 0.571 777 34, 0.451 416 02, 0.154 541 02, 0.474 609 38, 0.652 832 03,
 0.323 486 33, 0.119 140 62, 0.715 087 89, 0.514 404 30, 0.202 636 72, 0.972 900 39,
 0.151 367 19, 0.097 412 11, 0.868 896 48, 0.546 875 00, 0.339 599 61, 0.788 330 08,
 0.307 373 05, 0.877 197 27, 0.647 705 08, 0.913 818 36, 0.458 496 09, 0.241 699 22,
```

```
 0.415 527 34, 0.639 160 16, 0.381 591 80, 0.343 261 72, 0.845 458 98, 0.473 388 67,
 0.780 273 44, 0.018 798 83, 0.344 238 28, 0.067 626 95, 0.128 906 25, 0.498 291 02,
 0.004 394 53, 0.731 689 45, 0.471 191 41, 0.840 820 31, 0.629 638 67, 0.370 361 33,
 0.936 035 16, 0.666 503 91, 0.357 910 16, 0.792 968 75, 0.378 662 11, 0.859 619 14,
 0.255 615 23, 0.483 398 44, 0.376 953 12, 0.647 949 22, 0.196 533 20, 0.481 933 59,
 0.037 597 66, 0.703 125 00, 0.886 718 75, 0.012 695 31, 0.241 210 94},
{0.556 640 62, 0.114 746 09, 0.425 537 11, 0.690 917 97, 0.704 833 98,
 0.035 644 53, 0.368 408 20, 0.116 210 94, 0.725 585 94, 0.949 462 89, 0.128 417 97,
 0.541 748 05, 0.233 154 30, 0.804 931 64, 0.356 445 31, 0.895 996 09, 0.469 970 70,
 0.751 220 70, 0.291 748 05, 0.803 466 80, 0.237 304 69, 0.963 378 91, 0.429 687 50,
 0.669 433 59, 0.000 244 14, 0.459 472 66, 0.316 894 53, 0.698 242 19, 0.128 173 83,
 0.773 193 36, 0.894 775 39, 0.114 501 95, 0.225 097 66, 0.015 380 86, 0.736 083 98,
 0.958 984 38, 0.342 773 44, 0.656 250 00, 0.441 894 53, 0.823 974 61, 0.902 343 75,
 0.334 472 66, 0.614 990 23, 0.951 171 88, 0.021 972 66, 0.573 486 33, 0.187 988 28,
 0.711 425 78, 0.244 140 62, 0.870 849 61, 0.514 160 16, 0.058 593 75, 0.281 738 28,
 0.010 009 77, 0.590 332 03, 0.105 957 03, 0.846 923 83, 0.772 460 94, 0.398 437 50,
 0.850 341 80, 0.322 265 62, 0.582 519 53, 0.371 337 89, 0.952 880 86},
{0.328 369 14, 0.776 855 47, 0.019 287 11, 0.905 761 72, 0.275 146 48,
 0.464 843 75, 0.906 982 42, 0.678 466 80, 0.846 191 41, 0.591 796 88, 0.287 841 80,
 0.831 542 97, 0.944 335 94, 0.454 833 98, 0.060 302 73, 0.587 890 62, 0.236 083 98,
 0.065 673 83, 0.629 150 39, 0.357 421 88, 0.586 669 92, 0.116 699 22, 0.166 503 91,
 0.350 585 94, 0.523 193 36, 0.145 507 81, 0.821 777 34, 0.594 482 42, 0.995 117 19,
 0.309 082 03, 0.438 964 84, 0.588 134 77, 0.761 230 47, 0.931 640 62, 0.583 984 38,
 0.505 371 09, 0.192 138 67, 0.838 623 05, 0.555 908 20, 0.154 052 73, 0.279 785 16,
 0.415 283 20, 0.927 734 38, 0.215 087 89, 0.700 927 73, 0.898 193 36, 0.468 261 72,
 0.072 509 77, 0.403 564 45, 0.752 197 27, 0.310 546 88, 0.639 648 44, 0.569 824 22,
 0.705 566 41, 0.916 992 19, 0.138 427 73, 0.274 658 20, 0.634 033 20, 0.115 722 66,
 0.529 785 16, 0.277 587 89, 0.811 767 58, 0.496 582 03, 0.907 470 70},
{0.042 968 75, 0.380 126 95, 0.622 314 45, 0.166 015 62, 0.648 437 50,
 0.197 265 62, 0.482 177 73, 0.226 318 36, 0.297 607 42, 0.013 427 73, 0.447 021 48,
 0.391 113 28, 0.143 066 41, 0.687 255 86, 0.184 082 03, 0.635 498 05, 0.925 781 25,
 0.502 197 27, 0.406 005 86, 0.967 285 16, 0.069 824 22, 0.738 525 39, 0.651 123 05,
 0.962 890 62, 0.784 912 11, 0.208 984 38, 0.058 349 61, 0.419 677 73, 0.753 417 97,
 0.067 871 09, 0.858 642 58, 0.687 500 00, 0.436 035 16, 0.392 333 98, 0.133 544 92,
 0.319 580 08, 0.747 070 31, 0.017 578 12, 0.925 537 11, 0.761 718 75, 0.520 263 67,
 0.052 246 09, 0.726 318 36, 0.168 457 03, 0.326 171 88, 0.114 257 81, 0.331 542 97,
 0.802 978 52, 0.189 697 27, 0.962 646 48, 0.259 277 34, 0.806 152 34, 0.031 982 42,
 0.441 406 25, 0.808 349 61, 0.325 439 45, 0.990 966 80, 0.436 279 30, 0.277 832 03,
 0.950 195 31, 0.047 607 42, 0.422 119 14, 0.101 318 36, 0.669 921 88},
{0.211 914 06, 0.468 505 86, 0.983 398 44, 0.490 478 52, 0.571 533 20,
 0.149 658 20, 0.843 261 72, 0.994 873 05, 0.596 679 69, 0.164 550 78, 0.800 048 83,
 0.981 689 45, 0.659 667 97, 0.354 736 33, 0.970 947 27, 0.295 166 02, 0.141 357 42,
 0.750 488 28, 0.843 017 58, 0.553 955 08, 0.459 960 94, 0.216 308 59, 0.905 273 44,
 0.337 890 62, 0.414 794 92, 0.945 068 36, 0.699 462 89, 0.238 525 39, 0.644 775 39,
 0.152 587 89, 0.312 011 72, 0.029 296 88, 0.649 658 20, 0.256 835 94, 0.056 152 34,
```

```
 0.869 384 77, 0.510 253 91, 0.144 775 39, 0.364 501 95, 0.219 970 70, 0.648 681 64,
 0.454 345 70, 0.295 410 16, 0.625 000 00, 0.548 583 98, 0.450 927 73, 0.684 814 45,
 0.971 923 83, 0.662 597 66, 0.519 775 39, 0.090 332 03, 0.396 240 23, 0.931 884 77,
 0.337 646 48, 0.713 378 91, 0.055 175 78, 0.544 189 45, 0.760 986 33, 0.124 755 86,
 0.818 115 23, 0.619 628 91, 0.188 232 42, 0.721 191 41, 0.826 660 16},
{0.947 265 62, 0.398 925 78, 0.730 224 61, 0.051 757 81, 0.818 603 52,
 0.686 767 58, 0.547 851 56, 0.089 599 61, 0.733 886 72, 0.355 468 75, 0.519 531 25,
 0.112 304 69, 0.017 333 98, 0.485 351 56, 0.869 628 91, 0.515 625 00, 0.044 677 73,
 0.704 589 84, 0.129 882 81, 0.036 376 95, 0.273 193 36, 0.835 937 50, 0.534 912 11,
 0.020 263 67, 0.642 089 84, 0.184 326 17, 0.864 257 81, 0.577 880 86, 0.384 521 48,
 0.956 298 83, 0.505 615 23, 0.823 242 19, 0.951 904 30, 0.455 566 41, 0.808 593 75,
 0.707 763 67, 0.379 882 81, 0.651 855 47, 0.975 097 66, 0.550 781 25, 0.815 429 69,
 0.246 582 03, 0.948 486 33, 0.854 492 19, 0.064 697 27, 0.912 597 66, 0.521 484 38,
 0.014 404 30, 0.266 601 56, 0.413 085 94, 0.575 195 31, 0.671 386 72, 0.144 042 97,
 0.252 197 27, 0.632 080 08, 0.449 707 03, 0.923 095 70, 0.314 453 12, 0.725 097 66,
 0.370 849 61, 0.903 076 17, 0.525 878 91, 0.246 093 75, 0.538 818 36},
{0.156 494 14, 0.548 339 84, 0.355 957 03, 0.907 226 56, 0.294 677 73,
 0.059 326 17, 0.385 498 05, 0.254 150 39, 0.921 142 58, 0.882 324 22, 0.411 376 95,
 0.257 812 50, 0.573 242 19, 0.722 167 97, 0.312 500 00, 0.769 042 97, 0.472 656 25,
 0.289 306 64, 0.952 392 58, 0.361 572 27, 0.671 142 58, 0.779 541 02, 0.075 683 59,
 0.241 455 08, 0.878 906 25, 0.332 275 39, 0.518 554 69, 0.011 474 61, 0.438 720 70,
 0.775 390 62, 0.212 402 34, 0.610 839 84, 0.374 511 72, 0.161 376 95, 0.557 373 05,
 0.203 125 00, 0.938 232 42, 0.566 406 25, 0.105 712 89, 0.722 412 11, 0.060 058 59,
 0.136 962 89, 0.424 560 55, 0.540 527 34, 0.759 521 48, 0.229 980 47, 0.563 964 84,
 0.319 091 80, 0.834 472 66, 0.053 710 94, 0.885 742 19, 0.375 244 14, 0.919 677 73,
 0.841 796 88, 0.493 896 48, 0.164 306 64, 0.866 210 94, 0.121 093 75, 0.437 011 72,
 0.536 621 09, 0.155 029 30, 0.314 208 98, 0.700 439 45, 0.458 984 38},
{0.025 878 91, 0.692 382 81, 0.127 441 41, 0.766 113 28, 0.435 791 02,
 0.968 261 72, 0.568 115 23, 0.125 244 14, 0.441 650 39, 0.049 072 27, 0.600 585 94,
 0.762 207 03, 0.914 306 64, 0.200 439 45, 0.109 375 00, 0.624 023 44, 0.362 304 69,
 0.591 552 73, 0.167 968 75, 0.878 417 97, 0.518 066 41, 0.147 216 80, 0.557 128 91,
 0.373 535 16, 0.631 347 66, 0.754 638 67, 0.204 101 56, 0.841 552 73, 0.302 001 95,
 0.570 312 50, 0.863 769 53, 0.190 429 69, 0.574 218 75, 0.904 296 88, 0.038 818 36,
 0.716 796 88, 0.409 179 69, 0.295 898 44, 0.572 509 77, 0.905 517 58, 0.324 218 75,
 0.603 759 77, 0.947 998 05, 0.085 205 08, 0.369 384 77, 0.206 542 97, 0.892 333 98,
 0.124 511 72, 0.758 544 92, 0.495 361 33, 0.252 685 55, 0.134 033 20, 0.723 632 81,
 0.031 250 00, 0.097 900 39, 0.689 697 27, 0.267 089 84, 0.504 882 81, 0.021 484 38,
 0.681 396 48, 0.966 308 59, 0.822 265 62, 0.110 351 56, 0.791 015 62},
{0.655 517 58, 0.917 480 47, 0.215 576 17, 0.609 375 00, 0.146 240 23,
 0.882 568 36, 0.199 218 75, 0.729 980 47, 0.680 419 92, 0.471 923 83, 0.157 958 98,
 0.670 166 02, 0.210 449 22, 0.423 583 98, 0.852 783 20, 0.065 185 55, 0.922 851 56,
 0.016 113 28, 0.755 371 09, 0.417 480 47, 0.263 183 59, 0.718 750 00, 0.986 328 12,
 0.847 167 97, 0.469 726 56, 0.963 623 05, 0.424 316 41, 0.718 994 14, 0.135 742 19,
 0.949 951 17, 0.289 550 78, 0.050 048 83, 0.710 693 36, 0.352 050 78, 0.801 513 67,
 0.128 662 11, 0.492 919 92, 0.074 951 17, 0.019 042 97, 0.439 453 12, 0.838 867 19,
```

```
 0.281 494 14, 0.781 250 00, 0.547 119 14, 0.772 705 08, 0.613 769 53, 0.825 439 45,
 0.420 898 44, 0.957 519 53, 0.712 646 48, 0.578 857 42, 0.620 849 61, 0.365 966 80,
 0.486 572 27, 0.627 685 55, 0.366 210 94, 0.842 773 44, 0.766 601 56, 0.660 156 25,
 0.934 570 31, 0.082 763 67, 0.233 398 44, 0.528 076 17, 0.961 425 78},
{0.239 990 23, 0.414 306 64, 0.348 144 53, 0.556 396 48, 0.836 669 92,
 0.497 558 59, 0.363 281 25, 0.826 171 88, 0.162 597 66, 0.954 833 98, 0.349 365 23,
 0.885 986 33, 0.564 697 27, 0.294 189 45, 0.999 023 44, 0.609 619 14, 0.672 119 14,
 0.868 164 06, 0.345 458 98, 0.061 279 30, 0.957 031 25, 0.637 207 03, 0.419 189 45,
 0.278 564 45, 0.187 255 86, 0.110 839 84, 0.628 417 97, 0.349 853 52, 0.086 425 78,
 0.499 267 58, 0.697 509 77, 0.388 916 02, 0.976 074 22, 0.279 541 02, 0.618 652 34,
 0.971 191 41, 0.660 644 53, 0.885 009 77, 0.626 953 12, 0.246 337 89, 0.768 554 69,
 0.042 480 47, 0.223 388 67, 0.389 160 16, 0.988 281 25, 0.304 443 36, 0.015 869 14,
 0.270 751 95, 0.476 318 36, 0.127 685 55, 0.265 625 00, 0.002 197 27, 0.281 005 86,
 0.865 478 52, 0.872 558 59, 0.122 070 31, 0.242 431 64, 0.425 048 83, 0.151 611 33,
 0.463 378 91, 0.771 240 23, 0.656 738 28, 0.472 167 97, 0.383 789 06},
{0.798 095 70, 0.631 103 52, 0.280 273 44, 0.789 062 50, 0.034 179 69,
 0.654 541 02, 0.183 837 89, 0.809 570 31, 0.013 183 59, 0.462 890 62, 0.706 542 97,
 0.289 794 92, 0.049 560 55, 0.649 169 92, 0.464 111 33, 0.137 207 03, 0.263 671 88,
 0.477 294 92, 0.108 642 58, 0.781 005 86, 0.582 275 39, 0.199 951 17, 0.051 025 39,
 0.775 634 77, 0.510 986 33, 0.913 085 94, 0.322 509 77, 0.485 107 42, 0.889 404 30,
 0.833 007 81, 0.162 841 80, 0.564 941 41, 0.823 730 47, 0.178 222 66, 0.444 091 80,
 0.227 050 78, 0.325 927 73, 0.208 007 81, 0.776 611 33, 0.495 849 61, 0.983 642 58,
 0.636 962 89, 0.453 613 28, 0.880 371 09, 0.067 382 81, 0.731 201 17, 0.522 705 08,
 0.645 019 53, 0.334 960 94, 0.864 013 67, 0.784 179 69, 0.725 341 80, 0.995 605 47,
 0.387 451 17, 0.168 701 17, 0.743 164 06, 0.940 917 97, 0.657 958 98, 0.187 011 72,
 0.354 492 19, 0.580 322 27, 0.324 951 17, 0.030 273 44, 0.158 203 12},
{0.523 925 78, 0.021 240 23, 0.868 652 34, 0.984 619 14, 0.266 357 42,
 0.465 087 89, 0.299 072 27, 0.612 792 97, 0.500 000 00, 0.343 017 58, 0.628 906 25,
 0.126 953 12, 0.810 058 59, 0.919 433 59, 0.617 431 64, 0.347 656 25, 0.759 033 20,
 0.186 279 30, 0.636 474 61, 0.365 478 52, 0.182 373 05, 0.869 873 05, 0.421 142 58,
 0.832 763 67, 0.660 400 39, 0.076 171 88, 0.990 234 38, 0.740 478 52, 0.427 246 09,
 0.279 052 73, 0.935 302 73, 0.430 419 92, 0.105 468 75, 0.619 384 77, 0.826 904 30,
 0.497 070 31, 0.935 546 88, 0.691 894 53, 0.356 689 45, 0.050 537 11, 0.526 367 19,
 0.731 933 59, 0.340 087 89, 0.179 443 36, 0.601 074 22, 0.465 332 03, 0.199 707 03,
 0.782 470 70, 0.996 337 89, 0.214 111 33, 0.494 628 91, 0.092 041 02, 0.833 251 95,
 0.535 888 67, 0.697 998 05, 0.009 521 48, 0.539 794 92, 0.278 808 59, 0.880 859 38,
 0.988 525 39, 0.103 515 62, 0.795 166 02, 0.940 429 69, 0.733 398 44},
{0.272 949 22, 0.911 376 95, 0.140 625 00, 0.500 244 14, 0.202 392 58,
 0.771 484 38, 0.992 431 64, 0.935 058 59, 0.086 914 06, 0.879 150 39, 0.946 533 20,
 0.574 707 03, 0.399 414 06, 0.091 308 59, 0.287 353 52, 0.833 496 09, 0.989 257 81,
 0.582 031 25, 0.910 888 67, 0.844 238 28, 0.524 169 92, 0.062 988 28, 0.693 115 23,
 0.306 884 77, 0.562 255 86, 0.344 970 70, 0.662 353 52, 0.186 035 16, 0.043 457 03,
 0.585 205 08, 0.717 285 16, 0.510 498 05, 0.283 447 27, 0.033 203 12, 0.896 240 23,
 0.141 845 70, 0.650 146 48, 0.094 238 28, 0.876 220 70, 0.159 423 83, 0.901 123 05,
 0.248 046 88, 0.080 810 55, 0.733 154 30, 0.866 455 08, 0.552 734 38, 0.000 488 28,
```

```
 0.118 164 06, 0.887 207 03, 0.624 267 58, 0.376 220 70, 0.160 644 53, 0.343 750 00,
 0.232 177 73, 0.433 837 89, 0.612 304 69, 0.229 003 91, 0.816 650 39, 0.715 820 31,
 0.475 830 08, 0.253 417 97, 0.646 240 23, 0.209 228 52, 0.480 957 03},
{0.688 232 42, 0.646 728 52, 0.353 759 77, 0.726 806 64, 0.569 091 80,
 0.420 410 16, 0.660 888 67, 0.189 208 98, 0.478 027 34, 0.643 310 55, 0.220 214 84,
 0.778 564 45, 0.211 425 78, 0.750 732 42, 0.433 349 61, 0.065 917 97, 0.397 460 94,
 0.106 689 45, 0.330 566 41, 0.259 521 48, 0.681 640 62, 0.219 238 28, 0.975 830 08,
 0.378 906 25, 0.025 634 77, 0.787 353 52, 0.284 179 69, 0.910 400 39, 0.457 519 53,
 0.110 107 42, 0.327 880 86, 0.966 064 45, 0.805 908 20, 0.668 701 17, 0.418 212 89,
 0.569 335 94, 0.285 888 67, 0.512 939 45, 0.747 314 45, 0.297 851 56, 0.615 478 52,
 0.429 931 64, 0.790 771 48, 0.992 919 92, 0.416 503 91, 0.150 878 91, 0.816 406 25,
 0.417 236 33, 0.539 062 50, 0.726 562 50, 0.302 490 23, 0.578 125 00, 0.666 259 77,
 0.969 726 56, 0.368 896 48, 0.920 166 02, 0.149 902 34, 0.437 988 28, 0.064 453 12,
 0.583 496 09, 0.026 123 05, 0.542 480 47, 0.886 474 61, 0.063 720 70},
{0.440 185 55, 0.201 416 02, 0.799 072 27, 0.033 691 41, 0.117 187 50,
 0.683 593 75, 0.041 748 05, 0.782 714 84, 0.270 019 53, 0.727 539 06, 0.080 322 27,
 0.444 580 08, 0.000 732 42, 0.881 591 80, 0.484 619 14, 0.247 314 45, 0.661 132 81,
 0.506 103 52, 0.178 466 80, 0.805 664 06, 0.937 011 72, 0.479 736 33, 0.745 117 19,
 0.618 164 06, 0.900 146 48, 0.442 138 67, 0.216 552 73, 0.593 505 86, 0.797 607 42,
 0.857 421 88, 0.205 078 12, 0.608 398 44, 0.359 619 14, 0.138 916 02, 0.747 802 73,
 0.222 167 97, 0.785 644 53, 0.112 548 83, 0.030 517 58, 0.848 632 81, 0.505 859 38,
 0.138 671 88, 0.568 603 52, 0.322 753 91, 0.850 097 66, 0.229 492 19, 0.655 029 30,
 0.321 289 06, 0.779 785 16, 0.070 556 64, 0.041 992 19, 0.859 130 86, 0.813 232 42,
 0.482 421 88, 0.228 515 62, 0.728 271 48, 0.781 494 14, 0.558 349 61, 0.350 341 80,
 0.648 193 36, 0.759 765 62, 0.283 935 55, 0.386 718 75, 0.985 351 56},
{0.764 648 44, 0.452 392 58, 0.924 316 41, 0.578 613 28, 0.296 630 86,
 0.839 111 33, 0.339 355 47, 0.129 394 53, 0.589 111 33, 0.360 107 42, 0.928 955 08,
 0.604 003 91, 0.695 556 64, 0.284 667 97, 0.560 546 88, 0.949 218 75, 0.834 228 52,
 0.037 353 52, 0.643 798 83, 0.383 300 78, 0.285 400 39, 0.074 218 75, 0.173 583 98,
 0.364 013 67, 0.130 615 23, 0.546 630 86, 0.744 628 91, 0.040 283 20, 0.401 367 19,
 0.655 273 44, 0.943 603 52, 0.446 044 92, 0.239 013 67, 0.871 093 75, 0.501 464 84,
 0.039 062 50, 0.904 541 02, 0.445 556 64, 0.640 136 72, 0.937 988 28, 0.198 242 19,
 0.702 636 72, 0.224 365 23, 0.082 031 25, 0.649 414 06, 0.327 148 44, 0.711 181 64,
 0.023 925 78, 0.965 820 31, 0.458 007 81, 0.402 099 61, 0.686 523 44, 0.111 572 27,
 0.042 724 61, 0.888 427 73, 0.355 224 61, 0.035 156 25, 0.928 466 80, 0.288 818 36,
 0.998 535 16, 0.897 705 08, 0.447 265 62, 0.602 050 78, 0.119 384 77},
{0.606 201 17, 0.976 806 64, 0.181 640 62, 0.832 031 25, 0.442 871 09,
 0.959 716 80, 0.563 232 42, 0.457 275 39, 0.889 648 44, 0.546 142 58, 0.143 554 69,
 0.827 636 72, 0.394 287 11, 0.924 560 55, 0.809 326 17, 0.122 314 45, 0.336 425 78,
 0.886 230 47, 0.735 595 70, 0.159 179 69, 0.911 621 09, 0.527 099 61, 0.673 828 12,
 0.454 101 56, 0.845 214 84, 0.987 792 97, 0.255 859 38, 0.914 062 50, 0.291 503 91,
 0.516 113 28, 0.121 826 17, 0.663 330 08, 0.014 648 44, 0.576 904 30, 0.392 089 84,
 0.255 126 95, 0.822 509 77, 0.534 179 69, 0.172 851 56, 0.785 400 39, 0.426 513 67,
 0.086 669 92, 0.963 867 19, 0.923 828 12, 0.509 033 20, 0.791 259 77, 0.166 748 05,
 0.900 634 77, 0.362 060 55, 0.235 351 56, 0.876 464 84, 0.555 419 92, 0.182 128 91,
```

```
 0.461 181 64, 0.681 152 34, 0.565 673 83, 0.217 041 02, 0.133 056 64, 0.752 441 41,
 0.551 025 39, 0.021 728 52, 0.185 302 73, 0.862 060 55, 0.288 085 94},
{0.418 701 17, 0.271 728 52, 0.543 945 31, 0.329 345 70, 0.198 974 61,
 0.061 767 58, 0.705 078 12, 0.796 630 86, 0.024 414 06, 0.300 048 83, 0.775 146 48,
 0.188 720 70, 0.040 771 48, 0.625 488 28, 0.179 199 22, 0.720 214 84, 0.516 845 70,
 0.280 761 72, 0.428 222 66, 0.814 941 41, 0.124 023 44, 0.712 402 34, 0.870 605 47,
 0.018 066 41, 0.309 326 17, 0.729 248 05, 0.107 910 16, 0.650 634 77, 0.387 695 31,
 0.023 193 36, 0.287 597 66, 0.904 052 73, 0.801 269 53, 0.236 572 27, 0.696 533 20,
 0.989 746 09, 0.664 306 64, 0.389 892 58, 0.063 232 42, 0.283 203 12, 0.843 750 00,
 0.265 869 14, 0.659 912 11, 0.693 603 52, 0.404 052 73, 0.207 763 67, 0.436 523 44,
 0.498 779 30, 0.700 195 31, 0.151 855 47, 0.587 646 48, 0.958 007 81, 0.387 939 45,
 0.810 791 02, 0.091 552 73, 0.432 128 91, 0.827 148 44, 0.400 146 48, 0.564 208 98,
 0.249 023 44, 0.357 177 73, 0.694 335 94, 0.061 523 44, 0.803 955 08},
{0.032 470 70, 0.806 640 62, 0.075 195 31, 0.695 312 50, 0.729 736 33,
 0.538 574 22, 0.364 257 81, 0.229 736 33, 0.415 771 48, 0.956 054 69, 0.664 062 50,
 0.507 080 08, 0.501 708 98, 0.318 359 38, 0.011 230 47, 0.475 585 94, 0.214 599 61,
 0.977 783 20, 0.066 162 11, 0.450 195 31, 0.588 623 05, 0.228 027 34, 0.416 748 05,
 0.625 732 42, 0.081 542 97, 0.602 539 06, 0.358 886 72, 0.572 021 48, 0.830 810 55,
 0.728 027 34, 0.677 246 09, 0.559 326 17, 0.167 480 47, 0.942 138 67, 0.443 847 66,
 0.333 496 09, 0.004 638 67, 0.813 964 84, 0.862 548 83, 0.685 546 88, 0.614 746 09,
 0.578 369 14, 0.439 697 27, 0.300 781 25, 0.825 927 73, 0.079 589 84, 0.558 105 47,
 0.863 037 11, 0.048 828 12, 0.428 955 08, 0.773 681 64, 0.083 740 23, 0.301 269 53,
 0.658 691 41, 0.842 041 02, 0.633 789 06, 0.992 187 50, 0.478 759 77, 0.633 544 92,
 0.907 958 98, 0.165 283 20, 0.453 857 42, 0.697 021 48, 0.552 490 23},
{0.741 210 94, 0.519 042 97, 0.974 121 09, 0.333 007 81, 0.052 490 23,
 0.870 361 33, 0.955 566 41, 0.164 062 50, 0.807 861 33, 0.181 884 77, 0.036 132 81,
 0.245 849 61, 0.727 294 92, 0.977 050 78, 0.448 242 19, 0.662 841 80, 0.917 236 33,
 0.655 761 72, 0.527 587 89, 0.345 703 12, 0.763 427 73, 0.137 451 17, 0.966 552 73,
 0.828 857 42, 0.417 968 75, 0.186 523 44, 0.965 332 03, 0.115 234 38, 0.411 865 23,
 0.099 609 38, 0.969 970 70, 0.322 021 48, 0.476 806 64, 0.717 773 44, 0.053 955 08,
 0.567 138 67, 0.630 615 23, 0.352 539 06, 0.522 949 22, 0.174 804 69, 0.960 205 08,
 0.092 529 30, 0.872 314 45, 0.000 976 56, 0.512 695 31, 0.973 632 81, 0.294 921 88,
 0.189 453 12, 0.933 105 47, 0.673 095 70, 0.920 898 44, 0.424 804 69, 0.683 837 89,
 0.003 662 11, 0.172 119 14, 0.065 429 69, 0.371 582 03, 0.174 316 41, 0.853 027 34,
 0.758 056 64, 0.601 562 50, 0.868 408 20, 0.100 097 66, 0.319 824 22},
{0.163 574 22, 0.876 708 98, 0.153 320 31, 0.434 814 45, 0.615 966 80,
 0.271 484 38, 0.453 125 00, 0.641 601 56, 0.549 804 69, 0.754 150 39, 0.541 503 91,
 0.104 980 47, 0.936 279 30, 0.677 001 95, 0.221 923 83, 0.803 710 94, 0.358 154 30,
 0.235 595 70, 0.004 882 81, 0.734 130 86, 0.952 148 44, 0.494 873 05, 0.653 808 59,
 0.298 339 84, 0.525 146 48, 0.895 263 67, 0.712 890 62, 0.324 462 89, 0.818 847 66,
 0.458 251 95, 0.028 320 31, 0.194 824 22, 0.830 566 41, 0.090 087 89, 0.226 806 64,
 0.796 875 00, 0.196 289 06, 0.101 806 64, 0.902 099 61, 0.426 025 39, 0.493 164 06,
 0.158 691 41, 0.860 351 56, 0.346 679 69, 0.140 136 72, 0.612 548 83, 0.769 287 11,
 0.540 039 06, 0.337 158 20, 0.094 970 70, 0.575 439 45, 0.242 675 78, 0.544 921 88,
 0.913 574 22, 0.270 263 67, 0.571 289 06, 0.724 853 52, 0.315 917 97, 0.099 121 09,
```

```
 0.220 458 98, 0.043 212 89, 0.361 328 12, 0.993 652 34, 0.478 271 48},
{0.437 744 14, 0.706 787 11, 0.319 335 94, 0.776 123 05, 0.377 929 69,
 0.830 078 12, 0.136 718 75, 0.804 687 50, 0.284 423 83, 0.408 203 12, 0.891 845 70,
 0.309 570 31, 0.557 617 19, 0.393 066 41, 0.174 072 27, 0.036 621 09, 0.577 148 44,
 0.866 699 22, 0.175 292 97, 0.842 529 30, 0.303 222 66, 0.210 205 08, 0.013 916 02,
 0.780 029 30, 0.147 460 94, 0.433 593 75, 0.209 716 80, 0.541 015 62, 0.954 345 70,
 0.728 515 62, 0.492 431 64, 0.607 910 16, 0.581 054 69, 0.941 406 25, 0.391 601 56,
 0.688 476 56, 0.816 894 53, 0.551 269 53, 0.271 240 23, 0.661 376 95, 0.795 410 16,
 0.239 501 95, 0.540 283 20, 0.631 835 94, 0.821 289 06, 0.070 312 50, 0.690 429 69,
 0.339 843 75, 0.161 865 23, 0.477 050 78, 0.812 011 72, 0.048 583 98, 0.286 376 95,
 0.597 656 25, 0.480 224 61, 0.933 837 89, 0.499 023 44, 0.623 046 88, 0.891 357 42,
 0.480 712 89, 0.443 359 38, 0.820 800 78, 0.705 810 55, 0.212 158 20},
{0.605 224 61, 0.022 460 94, 0.699 218 75, 0.545 410 16, 0.100 830 08,
 0.929 687 50, 0.474 853 52, 0.386 474 61, 0.087 402 34, 0.787 597 66, 0.001 220 70,
 0.532 226 56, 0.864 746 09, 0.770 996 09, 0.351 074 22, 0.901 367 19, 0.301 025 39,
 0.552 978 52, 0.058 105 47, 0.474 365 23, 0.580 810 55, 0.114 990 23, 0.851 074 22,
 0.257 324 22, 0.905 029 30, 0.714 355 47, 0.002 441 41, 0.665 527 34, 0.120 849 61,
 0.306 152 34, 0.211 669 92, 0.808 837 89, 0.340 576 17, 0.135 498 05, 0.539 306 64,
 0.331 054 69, 0.984 863 28, 0.080 566 41, 0.721 923 83, 0.372 802 73, 0.007 812 50,
 0.642 333 98, 0.735 839 84, 0.267 822 27, 0.409 423 83, 0.995 849 61, 0.427 490 23,
 0.870 117 19, 0.699 707 03, 0.765 625 00, 0.150 390 62, 0.423 095 70, 0.994 140 62,
 0.767 333 98, 0.879 394 53, 0.404 541 02, 0.139 648 44, 0.033 935 55, 0.297 119 14,
 0.780 761 72, 0.566 162 11, 0.140 869 14, 0.269 531 25, 0.918 945 31},
{0.545 166 02, 0.253 662 11, 0.082 519 53, 0.929 199 22, 0.299 316 41,
 0.233 886 72, 0.898 437 50, 0.580 078 12, 0.163 330 08, 0.817 626 95, 0.604 980 47,
 0.162 109 38, 0.235 839 84, 0.672 607 42, 0.520 507 81, 0.749 511 72, 0.137 939 45,
 0.441 162 11, 0.733 642 58, 0.951 660 16, 0.317 626 95, 0.639 892 58, 0.918 701 17,
 0.530 517 58, 0.606 933 59, 0.313 720 70, 0.236 816 41, 0.853 515 62, 0.364 746 09,
 0.499 755 86, 0.908 935 55, 0.875 732 42, 0.049 316 41, 0.675 781 25, 0.906 250 00,
 0.479 248 05, 0.207 519 53, 0.362 792 97, 0.183 105 47, 0.875 244 14, 0.154 785 16,
 0.332 519 53, 0.185 791 02, 0.944 824 22, 0.815 673 83, 0.193 115 23, 0.597 412 11,
 0.054 687 50, 0.968 017 58, 0.232 421 88, 0.875 000 00, 0.435 058 59, 0.667 480 47,
 0.248 291 02, 0.083 984 38, 0.315 673 83, 0.709 228 52, 0.972 412 11, 0.530 273 44,
 0.851 806 64, 0.674 072 27, 0.064 941 41, 0.337 402 34, 0.812 988 28},
{0.132 080 08, 0.727 783 20, 0.855 712 89, 0.484 375 00, 0.768 066 41,
 0.647 216 80, 0.364 990 23, 0.011 718 75, 0.689 208 98, 0.212 890 62, 0.367 675 78,
 0.993 408 20, 0.465 576 17, 0.069 091 80, 0.975 585 94, 0.255 371 09, 0.632 568 36,
 0.895 751 95, 0.142 578 12, 0.385 009 77, 0.786 132 81, 0.544 677 73, 0.081 787 11,
 0.419 433 59, 0.867 431 64, 0.097 167 97, 0.511 718 75, 0.884 033 20, 0.726 074 22,
 0.008 789 06, 0.162 353 52, 0.524 658 20, 0.247 802 73, 0.407 470 70, 0.864 990 23,
 0.100 585 94, 0.736 572 27, 0.543 457 03, 0.591 308 59, 0.930 175 78, 0.773 925 78,
 0.447 998 05, 0.572 998 05, 0.217 529 30, 0.390 380 86, 0.515 136 72, 0.095 214 84,
 0.275 878 91, 0.506 347 66, 0.368 652 34, 0.658 203 12, 0.514 892 58, 0.129 638 67,
 0.776 367 19, 0.593 994 14, 0.925 048 83, 0.101 562 50, 0.384 277 34, 0.270 507 81,
 0.123 046 88, 0.557 861 33, 0.902 832 03, 0.645 996 09, 0.462 402 34},
```

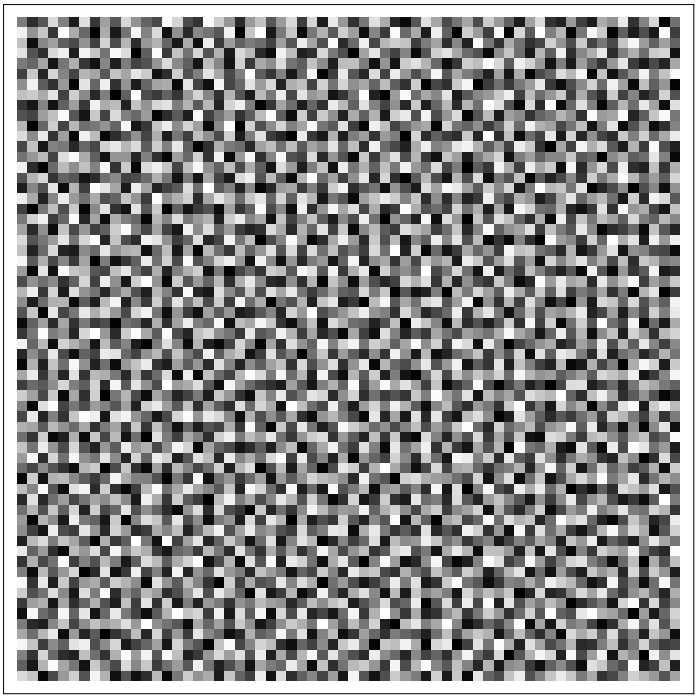
```
{0.906 494 14, 0.383 544 92, 0.605 712 89, 0.182 861 33, 0.040 527 34,
 0.734 375 00, 0.592 773 44, 0.855 957 03, 0.273 681 64, 0.960 693 36, 0.562 011 72,
 0.786 376 95, 0.679 687 50, 0.230 957 03, 0.083 251 95, 0.407 958 98, 0.460 693 36,
 0.228 759 77, 0.717 529 30, 0.470 458 98, 0.170 166 02, 0.881 835 94, 0.456 298 83,
 0.208 496 09, 0.676 757 81, 0.348 632 81, 0.635 009 77, 0.194 580 08, 0.422 363 28,
 0.947 021 48, 0.649 902 34, 0.286 621 09, 0.583 740 23, 0.741 699 22, 0.205 566 41,
 0.349 121 09, 0.825 683 59, 0.920 410 16, 0.314 941 41, 0.476 074 22, 0.079 833 98,
 0.673 583 98, 0.914 794 92, 0.699 951 17, 0.046 630 86, 0.750 976 56, 0.743 652 34,
 0.594 726 56, 0.130 371 09, 0.761 474 61, 0.089 843 75, 0.898 925 78, 0.305 419 92,
 0.037 109 38, 0.515 380 86, 0.225 585 94, 0.817 382 81, 0.692 138 67, 0.606 689 45,
 0.944 091 80, 0.438 476 56, 0.249 267 58, 0.159 912 11, 0.991 943 36},
{0.208 740 23, 0.687 744 14, 0.282 958 98, 0.452 148 44, 0.980 224 61,
 0.242 919 92, 0.506 835 94, 0.316 162 11, 0.724 121 09, 0.486 083 98, 0.100 341 80,
 0.372 558 59, 0.861 083 98, 0.727 050 78, 0.367 431 64, 0.679 199 22, 0.818 359 38,
 0.999 755 86, 0.068 603 52, 0.293 945 31, 0.710 205 08, 0.041 015 62, 0.873 535 16,
 0.328 125 00, 0.979 248 05, 0.134 277 34, 0.917 724 61, 0.821 044 92, 0.445 800 78,
 0.062 500 00, 0.672 851 56, 0.900 390 62, 0.358 642 58, 0.012 451 17, 0.508 544 92,
 0.968 505 86, 0.613 281 25, 0.064 208 98, 0.156 738 28, 0.561 035 16, 0.959 472 66,
 0.267 578 12, 0.024 902 34, 0.122 558 59, 0.508 056 64, 0.982 910 16, 0.863 281 25,
 0.250 732 42, 0.395 507 81, 0.978 759 77, 0.611 816 41, 0.256 347 66, 0.496 337 89,
 0.823 486 33, 0.885 253 91, 0.491 943 36, 0.353 515 62, 0.053 222 66, 0.413 574 22,
 0.739 013 67, 0.003 906 25, 0.677 978 52, 0.326 416 02, 0.746 337 89},
{0.503 662 11, 0.045 654 30, 0.732 421 88, 0.347 900 39, 0.585 937 50,
 0.836 181 64, 0.011 962 89, 0.160 156 25, 0.890 869 14, 0.058 837 89, 0.223 876 95,
 0.941 162 11, 0.266 845 70, 0.509 521 48, 0.133 300 78, 0.957 275 39, 0.143 310 55,
 0.580 566 41, 0.405 273 44, 0.877 685 55, 0.594 238 28, 0.489 013 67, 0.159 667 97,
 0.760 742 19, 0.610 595 70, 0.472 900 39, 0.084 716 80, 0.390 625 00, 0.276 855 47,
 0.796 142 58, 0.519 287 11, 0.155 273 44, 0.915 039 06, 0.721 679 69, 0.779 052 73,
 0.285 644 53, 0.190 673 83, 0.693 359 38, 0.445 312 50, 0.308 105 47, 0.755 126 95,
 0.554 199 22, 0.366 699 22, 0.804 443 36, 0.624 755 86, 0.131 347 66, 0.393 798 83,
 0.706 298 83, 0.891 601 56, 0.084 960 94, 0.425 292 97, 0.066 894 53, 0.613 037 11,
 0.307 617 19, 0.119 873 05, 0.783 447 27, 0.590 576 17, 0.700 683 59, 0.155 761 72,
 0.848 144 53, 0.303 710 94, 0.795 654 30, 0.581 298 83, 0.113 525 39},
{0.984 130 86, 0.204 345 70, 0.912 353 52, 0.120 605 47, 0.789 306 64,
 0.260 253 91, 0.600 097 66, 0.670 898 44, 0.353 027 34, 0.797 363 28, 0.702 392 58,
 0.551 513 67, 0.032 958 98, 0.888 671 88, 0.579 589 84, 0.355 712 89, 0.745 605 47,
 0.521 728 52, 0.205 322 27, 0.017 822 27, 0.804 199 22, 0.257 568 36, 0.667 724 61,
 0.313 964 84, 0.373 291 02, 0.903 808 59, 0.515 869 14, 0.859 863 28, 0.674 316 41,
 0.007 324 22, 0.443 603 52, 0.605 468 75, 0.301 757 81, 0.082 275 39, 0.243 164 06,
 0.455 322 27, 0.921 875 00, 0.487 304 69, 0.881 347 66, 0.095 703 12, 0.199 462 89,
 0.798 583 98, 0.993 896 48, 0.448 974 61, 0.347 412 11, 0.056 884 77, 0.220 703 12,
 0.513 916 02, 0.475 097 66, 0.676 513 67, 0.460 937 50, 0.932 128 91, 0.811 279 30,
 0.720 703 12, 0.402 587 89, 0.075 439 45, 0.192 626 95, 0.964 599 61, 0.270 996 09,
 0.522 460 94, 0.060 546 88, 0.431 152 34, 0.961 914 06, 0.460 205 08},
{0.798 339 84, 0.315 429 69, 0.448 730 47, 0.866 943 36, 0.536 132 81,
```

```
 0.091 064 45, 0.865 234 38, 0.488 037 11, 0.990 478 52, 0.172 363 28, 0.549 072 27,
 0.395 263 67, 0.724 609 38, 0.618 896 48, 0.176 757 81, 0.310 302 73, 0.600 341 80,
 0.899 169 92, 0.312 255 86, 0.918 457 03, 0.708 251 95, 0.394 042 97, 0.009 033 20,
 0.874 023 44, 0.096 679 69, 0.234 375 00, 0.711 914 06, 0.044 921 88, 0.210 693 36,
 0.943 359 38, 0.403 320 31, 0.148 193 36, 0.676 269 53, 0.876 953 12, 0.537 353 52,
 0.071 289 06, 0.729 003 91, 0.102 539 06, 0.778 808 59, 0.518 310 55, 0.636 230 47,
 0.491 455 08, 0.088 623 05, 0.837 646 48, 0.559 082 03, 0.740 234 38, 0.603 027 34,
 0.782 226 56, 0.004 150 39, 0.149 414 06, 0.843 505 86, 0.137 695 31, 0.204 833 98,
 0.523 437 50, 0.845 947 27, 0.636 718 75, 0.909 423 83, 0.420 166 02, 0.221 191 41,
 0.572 753 91, 0.708 740 23, 0.448 486 33, 0.147 705 08, 0.682 861 33},
{0.234 130 86, 0.622 802 73, 0.682 373 05, 0.085 449 22, 0.653 320 31,
 0.186 767 58, 0.394 531 25, 0.694 824 22, 0.320 800 78, 0.109 863 28, 0.757 812 50,
 0.245 605 47, 0.890 625 00, 0.191 406 25, 0.801 025 39, 0.096 435 55, 0.495 117 19,
 0.123 779 30, 0.596 191 41, 0.482 666 02, 0.206 298 83, 0.574 462 89, 0.468 017 58,
 0.728 759 77, 0.617 187 50, 0.569 580 08, 0.156 982 42, 0.363 769 53, 0.737 060 55,
 0.553 710 94, 0.754 394 53, 0.846 679 69, 0.118 408 20, 0.326 904 30, 0.496 826 17,
 0.853 271 48, 0.299 560 55, 0.398 193 36, 0.922 607 42, 0.020 507 81, 0.341 064 45,
 0.862 304 69, 0.247 070 31, 0.926 757 81, 0.274 414 06, 0.977 294 92, 0.123 535 16,
 0.897 216 80, 0.313 232 42, 0.629 394 53, 0.477 783 20, 0.736 816 41, 0.581 542 97,
 0.014 892 58, 0.171 386 72, 0.338 623 05, 0.480 468 75, 0.083 007 81, 0.826 416 02,
 0.991 210 94, 0.204 589 84, 0.847 656 25, 0.251 953 12, 0.541 992 19},
{0.059 814 45, 0.971 679 69, 0.422 851 56, 0.318 603 52, 0.960 449 22,
 0.393 310 55, 0.900 878 91, 0.073 974 61, 0.412 841 80, 0.913 330 08, 0.474 121 09,
 0.264 404 30, 0.054 443 36, 0.354 980 47, 0.698 486 33, 0.994 384 77, 0.767 089 84,
 0.835 449 22, 0.236 328 12, 0.945 312 50, 0.095 947 27, 0.857 177 73, 0.361 816 41,
 0.962 402 34, 0.052 001 95, 0.841 308 59, 0.296 875 00, 0.903 320 31, 0.148 925 78,
 0.276 123 05, 0.093 017 58, 0.423 828 12, 0.953 125 00, 0.221 679 69, 0.691 650 39,
 0.998 046 88, 0.558 837 89, 0.213 867 19, 0.670 654 30, 0.121 337 89, 0.201 904 30,
 0.550 292 97, 0.720 458 98, 0.216 796 88, 0.471 435 55, 0.806 396 48, 0.594 970 70,
 0.195 312 50, 0.424 072 27, 0.822 998 05, 0.338 378 91, 0.984 375 00, 0.384 033 20,
 0.308 593 75, 0.903 564 45, 0.997 314 45, 0.690 185 55, 0.630 126 95, 0.411 132 81,
 0.017 089 84, 0.620 361 33, 0.103 271 48, 0.405 029 30, 0.824 707 03},
{0.485 595 70, 0.157 714 84, 0.117 675 78, 0.528 564 45, 0.765 869 14,
 0.267 333 98, 0.551 757 81, 0.754 882 81, 0.630 859 38, 0.693 847 66, 0.871 582 03,
 0.595 703 12, 0.988 769 53, 0.561 523 44, 0.449 951 17, 0.341 796 88, 0.044 189 45,
 0.663 574 22, 0.401 611 33, 0.638 916 02, 0.321 044 92, 0.791 992 19, 0.562 500 00,
 0.085 937 50, 0.249 511 72, 0.560 791 02, 0.792 724 61, 0.682 617 19, 0.461 914 06,
 0.994 628 91, 0.627 929 69, 0.358 398 44, 0.739 990 23, 0.459 716 80, 0.821 533 20,
 0.124 267 58, 0.007 568 36, 0.744 873 05, 0.901 855 47, 0.503 417 97, 0.658 935 55,
 0.990 722 66, 0.526 855 47, 0.055 908 20, 0.172 607 42, 0.409 667 97, 0.276 367 19,
 0.538 330 08, 0.980 712 89, 0.049 804 69, 0.641 845 70, 0.088 134 77, 0.819 091 80,
 0.477 539 06, 0.552 246 09, 0.264 160 16, 0.027 832 03, 0.193 603 52, 0.665 039 06,
 0.958 496 09, 0.457 763 67, 0.879 638 67, 0.325 195 31, 0.738 281 25},
{0.656 494 14, 0.425 781 25, 0.713 134 77, 0.916 259 77, 0.051 513 67,
 0.608 642 58, 0.145 996 09, 0.360 351 56, 0.000 000 00, 0.200 927 73, 0.351 806 64,
```

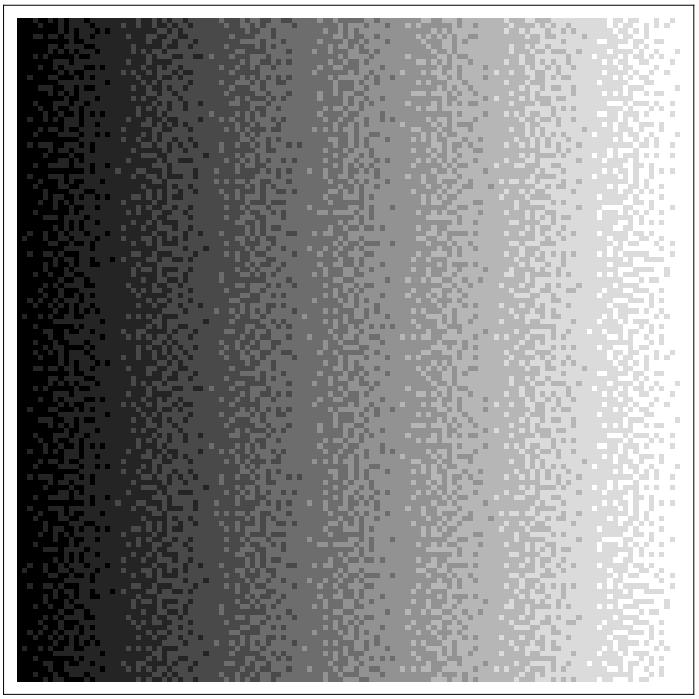
```
 0.739 501 95, 0.148 681 64, 0.834 960 94, 0.254 638 67, 0.603 515 62, 0.228 271 48,
 0.901 611 33, 0.534 667 97, 0.411 621 09, 0.060 791 02, 0.164 794 92, 0.695 068 36,
 0.376 708 98, 0.446 289 06, 0.953 369 14, 0.471 679 69, 0.872 070 31, 0.077 880 86,
 0.508 300 78, 0.742 919 92, 0.057 128 91, 0.213 623 05, 0.628 662 11, 0.406 494 14,
 0.187 500 00, 0.487 548 83, 0.399 658 20, 0.316 650 39, 0.125 976 56, 0.435 302 73,
 0.749 755 86, 0.310 058 59, 0.637 939 45, 0.784 667 97, 0.698 974 61, 0.078 125 00,
 0.395 996 09, 0.745 361 33, 0.390 869 14, 0.179 931 64, 0.522 216 80, 0.027 343 75,
 0.848 388 67, 0.665 771 48, 0.802 490 23, 0.389 648 44, 0.855 468 75, 0.304 931 64,
 0.533 203 12, 0.120 361 33, 0.772 949 22, 0.592 285 16, 0.057 861 33},
{0.961 181 64, 0.768 798 83, 0.237 548 83, 0.550 048 83, 0.375 488 28,
 0.883 300 78, 0.936 767 58, 0.307 861 33, 0.545 654 30, 0.839 355 47, 0.099 365 23,
 0.258 789 06, 0.397 216 80, 0.633 300 78, 0.086 181 64, 0.832 275 39, 0.470 703 12,
 0.331 298 83, 0.023 681 64, 0.756 103 52, 0.979 492 19, 0.280 517 58, 0.523 681 64,
 0.835 693 36, 0.740 722 66, 0.191 650 39, 0.050 781 25, 0.395 019 53, 0.257 080 08,
 0.548 828 12, 0.141 113 28, 0.777 832 03, 0.911 132 81, 0.532 470 70, 0.016 601 56,
 0.780 517 58, 0.742 187 50, 0.946 044 92, 0.667 236 33, 0.018 310 55, 0.840 087 89,
 0.912 109 38, 0.007 080 08, 0.252 441 41, 0.883 544 92, 0.455 078 12, 0.987 548 83,
 0.679 443 36, 0.136 230 47, 0.878 662 11, 0.637 695 31, 0.292 480 47, 0.442 382 81,
 0.703 857 42, 0.163 818 36, 0.195 068 36, 0.489 257 81, 0.741 455 08, 0.192 871 09,
 0.464 355 47, 0.820 312 50, 0.416 992 19, 0.231 201 17, 0.276 611 33},
{0.510 742 19, 0.202 880 86, 0.831 298 83, 0.412 353 52, 0.175 537 11,
 0.132 812 50, 0.744 140 62, 0.437 255 86, 0.198 730 47, 0.689 941 41, 0.991 699 22,
 0.605 957 03, 0.947 509 77, 0.335 937 50, 0.969 238 28, 0.745 849 61, 0.118 652 34,
 0.218 750 00, 0.592 041 02, 0.849 853 52, 0.620 605 47, 0.871 337 89, 0.327 392 58,
 0.920 654 30, 0.125 000 00, 0.668 457 03, 0.278 076 17, 0.711 669 92, 0.974 365 23,
 0.350 830 08, 0.893 066 41, 0.506 591 80, 0.313 476 56, 0.166 259 77, 0.923 583 98,
 0.549 316 41, 0.415 039 06, 0.146 484 38, 0.540 771 48, 0.256 103 52, 0.396 972 66,
 0.181 396 48, 0.588 378 91, 0.955 078 12, 0.416 015 62, 0.230 712 89, 0.843 994 14,
 0.016 357 42, 0.341 308 59, 0.691 406 25, 0.958 740 23, 0.835 205 08, 0.130 126 95,
 0.964 843 75, 0.291 015 62, 0.614 501 95, 0.948 730 47, 0.077 636 72, 0.698 730 47,
 0.556 884 77, 0.005 859 38, 0.941 650 39, 0.555 664 06, 0.892 089 84},
{0.378 417 97, 0.094 482 42, 0.701 904 30, 0.981 933 59, 0.653 076 17,
 0.467 773 44, 0.072 021 48, 0.788 085 94, 0.512 451 17, 0.292 724 61, 0.854 736 33,
 0.534 423 83, 0.781 738 28, 0.232 910 16, 0.440 429 69, 0.611 328 12, 0.345 947 27,
 0.939 697 27, 0.452 880 86, 0.130 859 38, 0.305 908 20, 0.516 357 42, 0.074 462 89,
 0.651 611 33, 0.486 816 41, 0.407 714 84, 0.923 339 84, 0.641 113 28, 0.048 095 70,
 0.763 183 59, 0.179 687 50, 0.449 218 75, 0.723 144 53, 0.792 480 47, 0.593 261 72,
 0.222 412 11, 0.953 857 42, 0.292 968 75, 0.722 900 39, 0.985 839 84, 0.520 019 53,
 0.346 923 83, 0.757 324 22, 0.514 648 44, 0.149 169 92, 0.707 031 25, 0.098 388 67,
 0.543 212 89, 0.597 167 97, 0.224 609 38, 0.054 931 64, 0.382 080 08, 0.543 701 17,
 0.317 871 09, 0.057 373 05, 0.875 976 56, 0.783 203 12, 0.412 597 66, 0.298 583 98,
 0.987 304 69, 0.139 160 16, 0.244 384 77, 0.751 708 98, 0.122 802 73},
{0.855 224 61, 0.775 878 91, 0.029 052 73, 0.288 330 08, 0.599 121 09,
 0.814 208 98, 0.326 660 16, 0.950 439 45, 0.696 289 06, 0.059 570 31, 0.329 589 84,
 0.063 964 84, 0.180 175 78, 0.719 726 56, 0.032 714 84, 0.468 750 00, 0.802 246 09,
```

```
0.576 171 88, 0.671 875 00, 0.107 177 73, 0.777 099 61, 0.388 427 73, 0.250 000 00,
0.928 222 66, 0.079 345 70, 0.860 107 42, 0.177 734 38, 0.380 859 38, 0.529 541 02,
0.269 287 11, 0.619 140 62, 0.090 576 17, 0.955 322 27, 0.334 716 80, 0.076 416 02,
0.311 035 16, 0.793 701 17, 0.601 806 64, 0.486 328 12, 0.106 201 17, 0.819 580 08,
0.102 783 20, 0.786 621 09, 0.034 912 11, 0.895 507 81, 0.396 484 38, 0.298 828 12,
0.760 009 77, 0.917 968 75, 0.318 115 23, 0.507 324 22, 0.767 578 12, 0.919 921 88,
0.782 958 98, 0.483 642 58, 0.666 992 19, 0.201 171 88, 0.281 982 42, 0.505 126 95,
0.814 453 12, 0.709 960 94, 0.598 632 81, 0.335 693 36, 0.642 822 27}};
```

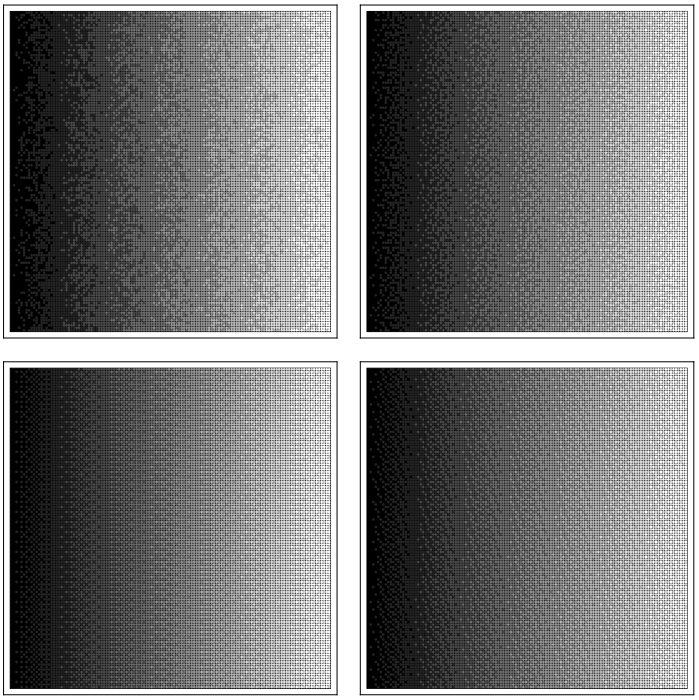
```
ArrayPlot[blueNoise64, ColorFunction → GrayLevel]
```

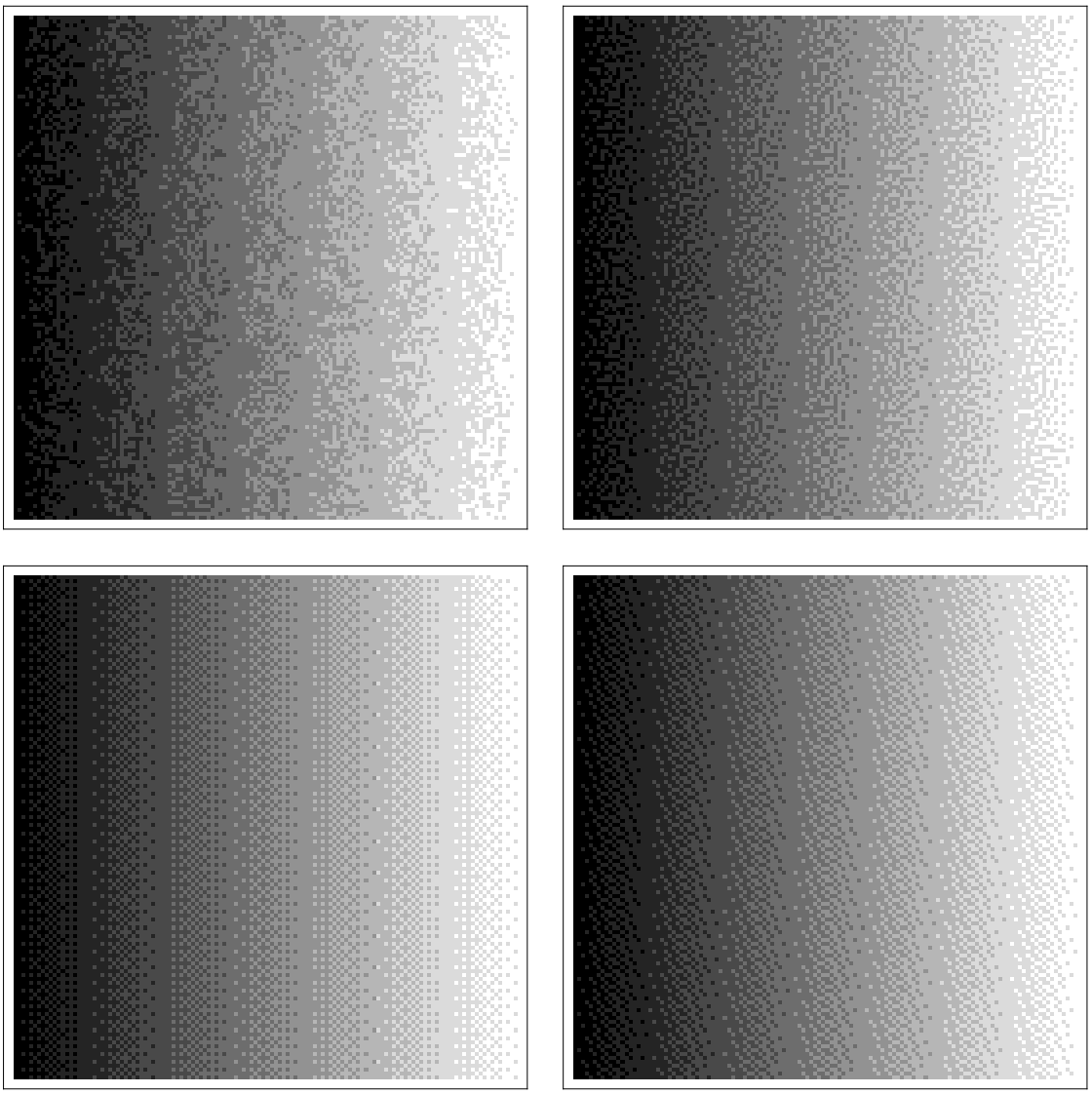


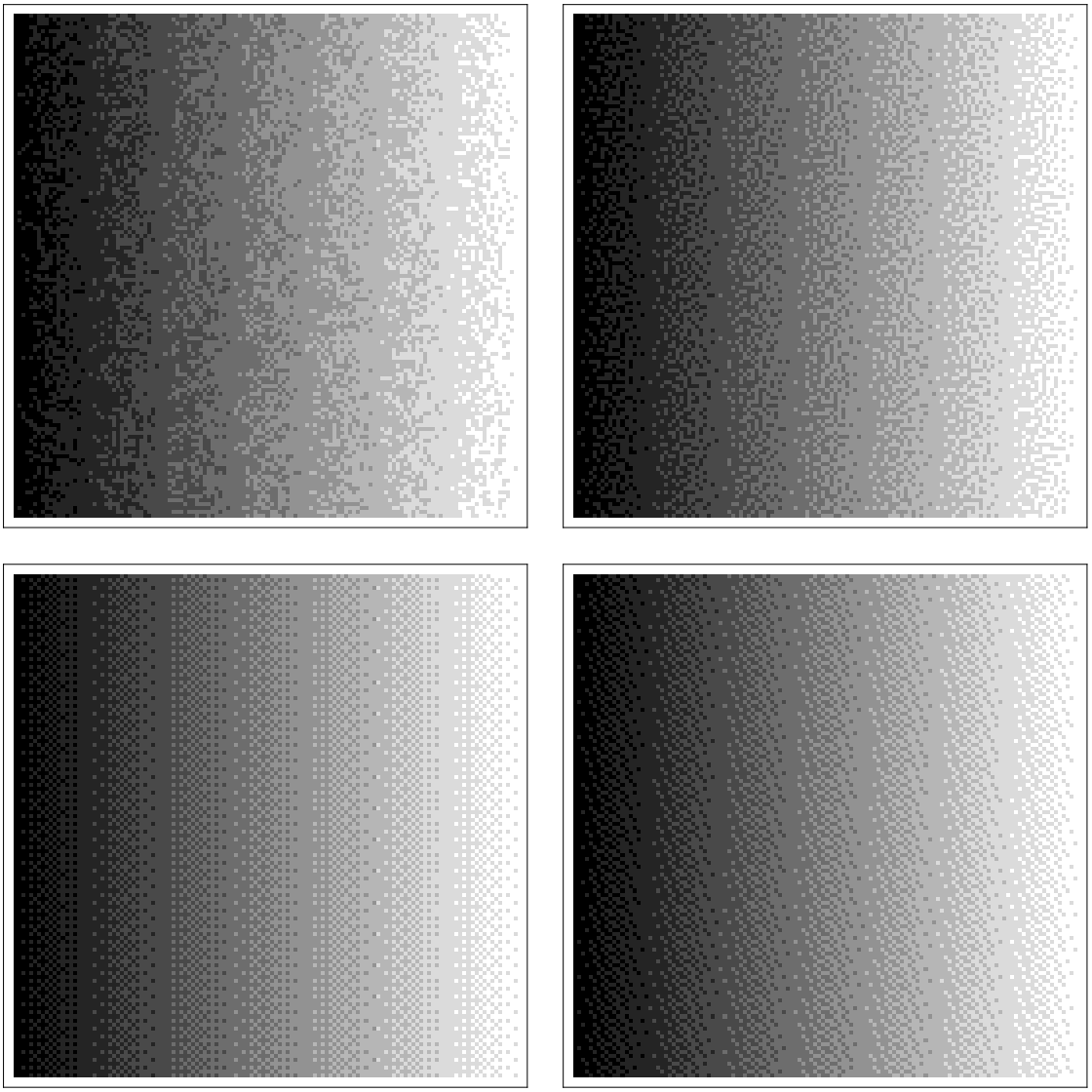
```
ditheredBlue = MapIndexed[
   QuantizeBits[#1, 3, SampleArrayWithWrap[blueNoise64, #2[[1]], #2[[2]]] - 0.5] &,
   origSignal, {2}];
ArrayPlot[ditheredBlue, ColorFunction → GrayLevel]
```



```
GraphicsGrid[{{ArrayPlot[ditheredWhite, ColorFunction → GrayLevel],
   ArrayPlot[ditheredBlue, ColorFunction → GrayLevel]},
  {ArrayPlot[ditheredBayer, ColorFunction → GrayLevel],
   ArrayPlot[ditheredInterleaved, ColorFunction → GrayLevel]}}]
Export["2dditheringalltechniquescompared.gif",
  {ArrayPlot[ditheredWhite, ColorFunction → GrayLevel],
   ArrayPlot[ditheredBlue, ColorFunction → GrayLevel],
   ArrayPlot[ditheredBayer, ColorFunction → GrayLevel], ArrayPlot[
    ditheredInterleaved, ColorFunction → GrayLevel]}, "DisplayDurations" → 2];
```

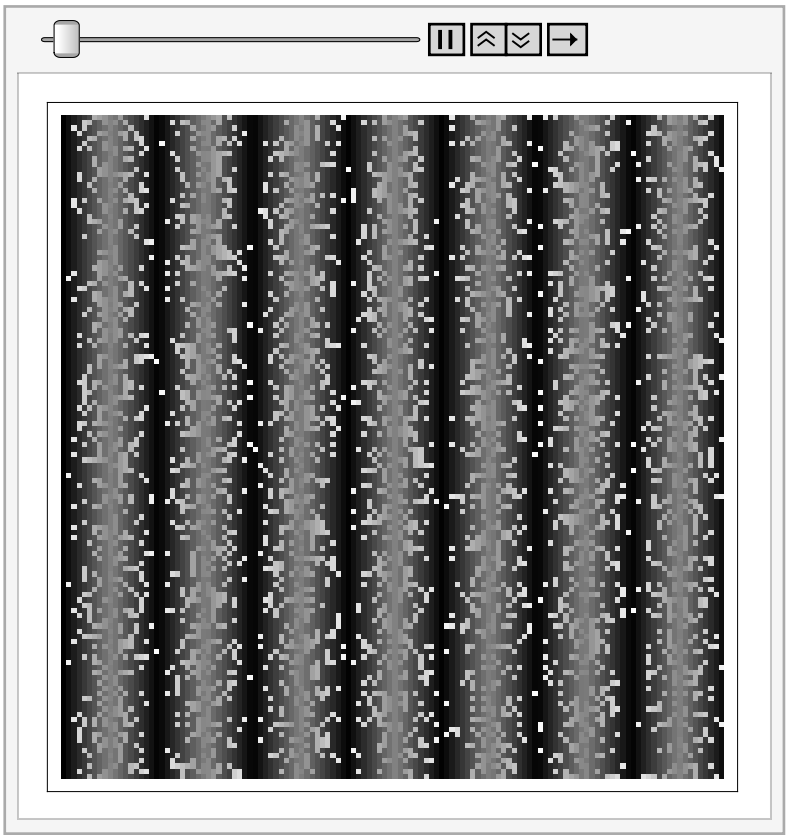






```
Export["2dditheringquandizecomparisongrid.png",
  GraphicsGrid[{{ArrayPlot[ditheredWhite, ColorFunction → GrayLevel],
     ArrayPlot[ditheredBlue, ColorFunction → GrayLevel]},
    {ArrayPlot[ditheredBayer, ColorFunction → GrayLevel],
     ArrayPlot[ditheredInterleaved, ColorFunction → GrayLevel]}}]];
```

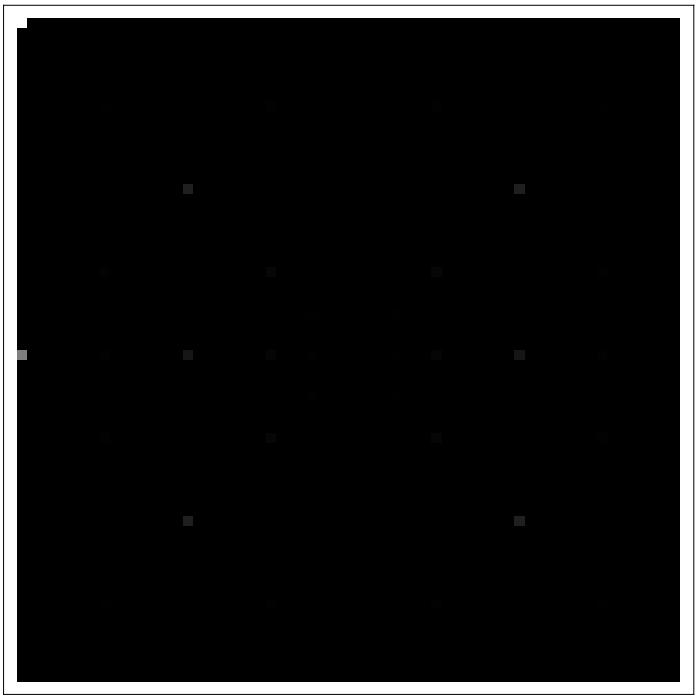
```
ListAnimate[{ArrayPlot[Abs[ditheredWhite - origSignal], ColorFunction → GrayLevel],
  ArrayPlot[ditheredWhite, ColorFunction → GrayLevel],
  ArrayPlot[origSignal, ColorFunction → GrayLevel]}]
```



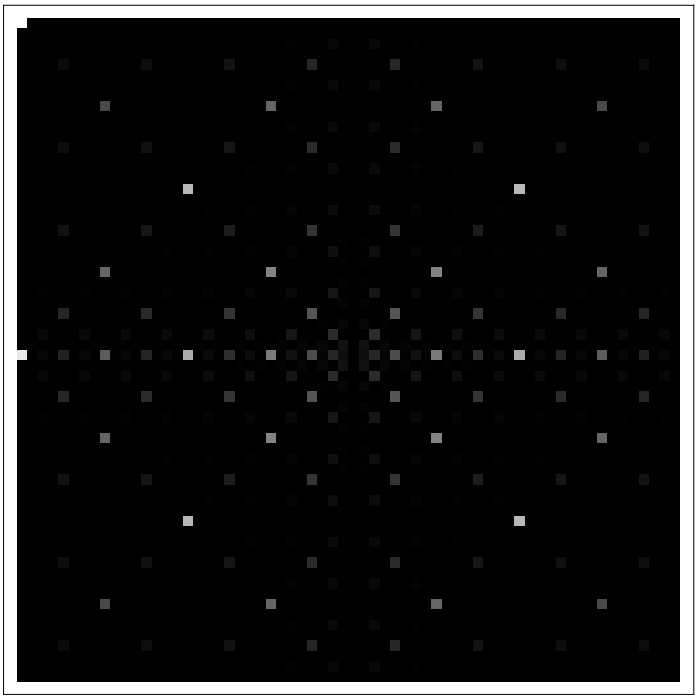
```
Export["2dditheringwhitebands.gif",
  {ArrayPlot[Abs[ditheredWhite - origSignal], ColorFunction → GrayLevel],
   ArrayPlot[ditheredWhite, ColorFunction → GrayLevel],
   ArrayPlot[origSignal, ColorFunction → GrayLevel]}, "DisplayDurations" → 2];
```

```
MyTwoDimPeriodogram[arr_] := ArrayPlot[
  Abs[RotateLeft[Fourier[arr], Dimensions[arr] / 2]], ColorFunction → GrayLevel]
```

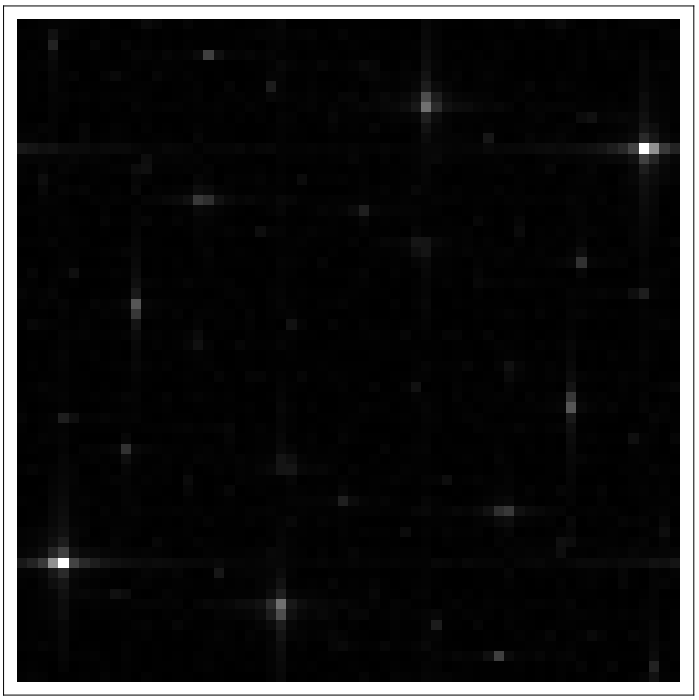
```
MyTwoDimPeriodogram[bayer6 - 0.5]
```

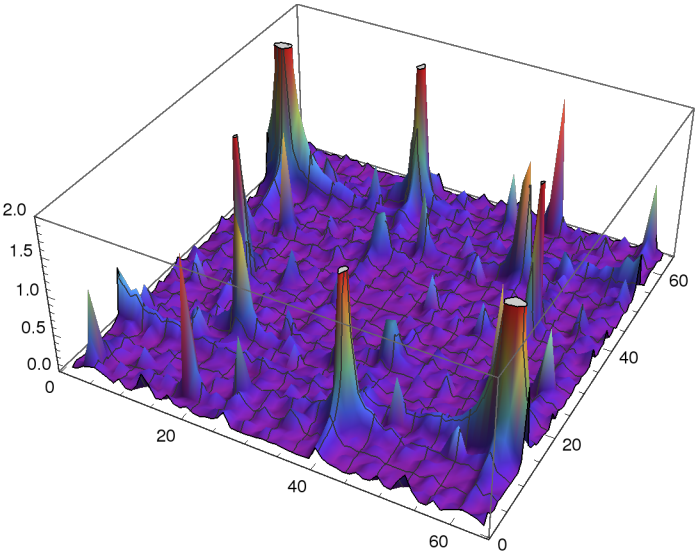


```
ArrayPlot[Log[0.01 + Abs[RotateLeft[Fourier[bayer6 - 0.5], Dimensions[bayer6] / 2]]],
 ColorFunction → GrayLevel]
```

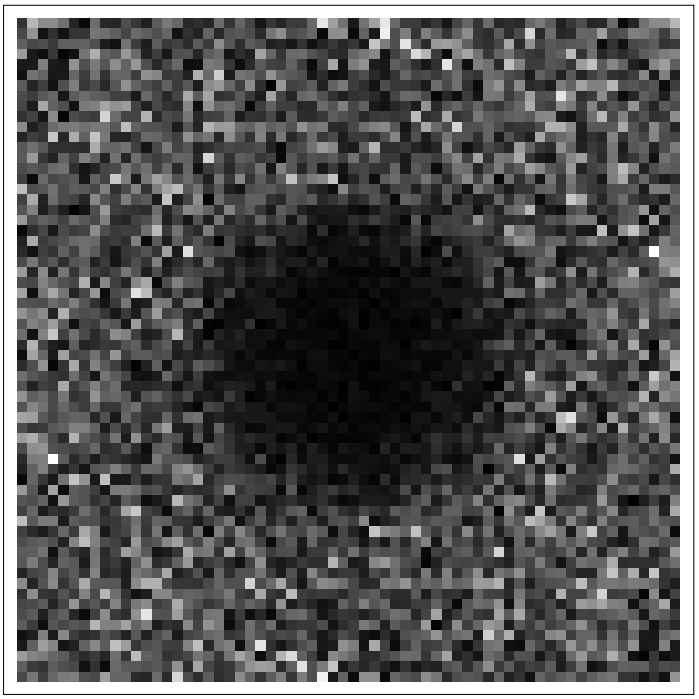


```
MyTwoDimPeriodogram[
 Table[InterleavedGradientNoise[x, y], {y, 0, 63}, {x, 0, 63}] - 0.5]
ListPlot3D[Abs[RotateLeft[Fourier[
    Table[InterleavedGradientNoise[x, y], {y, 0, 63}, {x, 0, 63}] - 0.5], {32, 32}]],
 PlotRange → {0, 2}, ColorFunction → "Rainbow"]
```

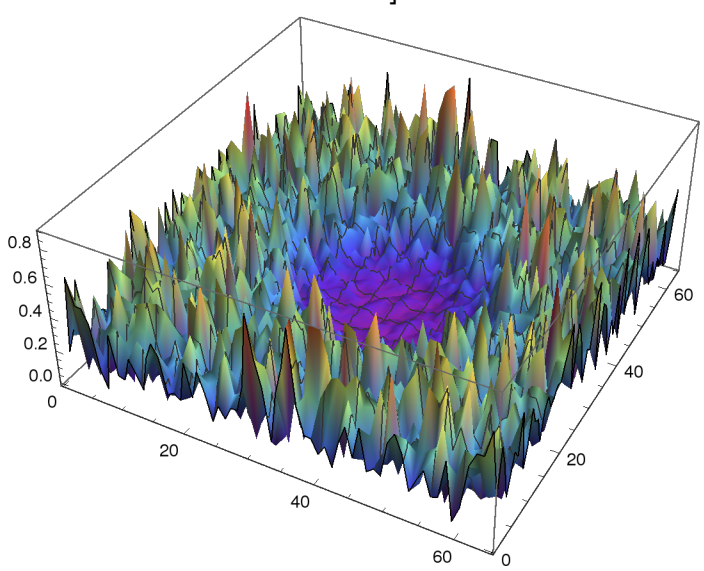




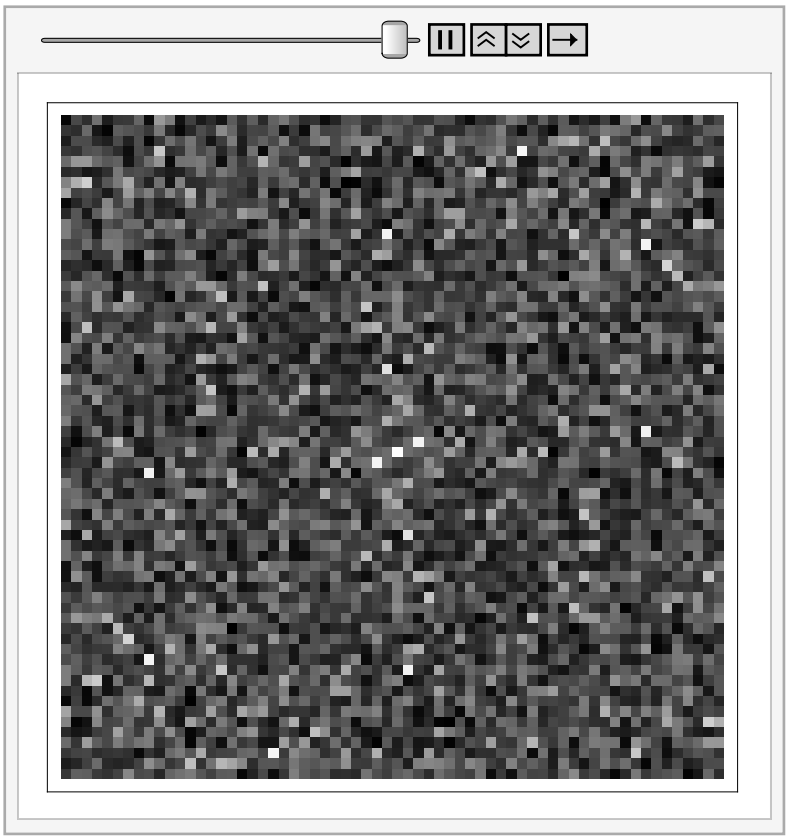
```
MyTwoDimPeriodogram[blueNoise64 - 0.5]
```



```
ListPlot3D[Abs[RotateLeft[Fourier[blueNoise64 - 0.5], Dimensions[bayer6] / 2]],
 ColorFunction → "Rainbow"]
```

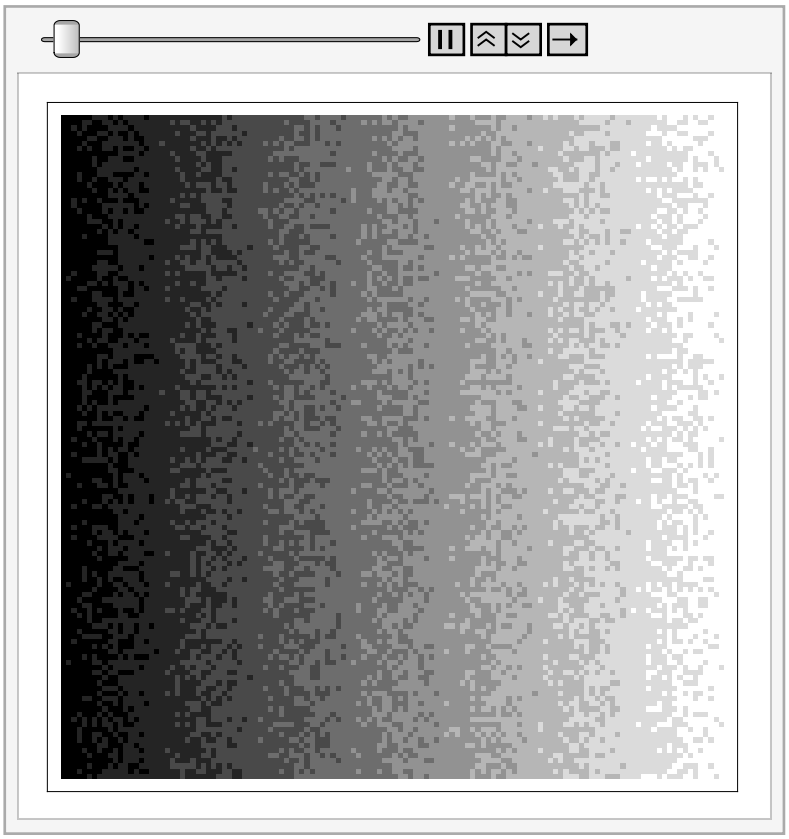


```
ListAnimate[{MyTwoDimPeriodogram[blueNoise64 - 0.5],
  MyTwoDimPeriodogram[Table[RandomReal[], {x, 0, 63}, {y, 0, 63}] - 0.5]}]
```



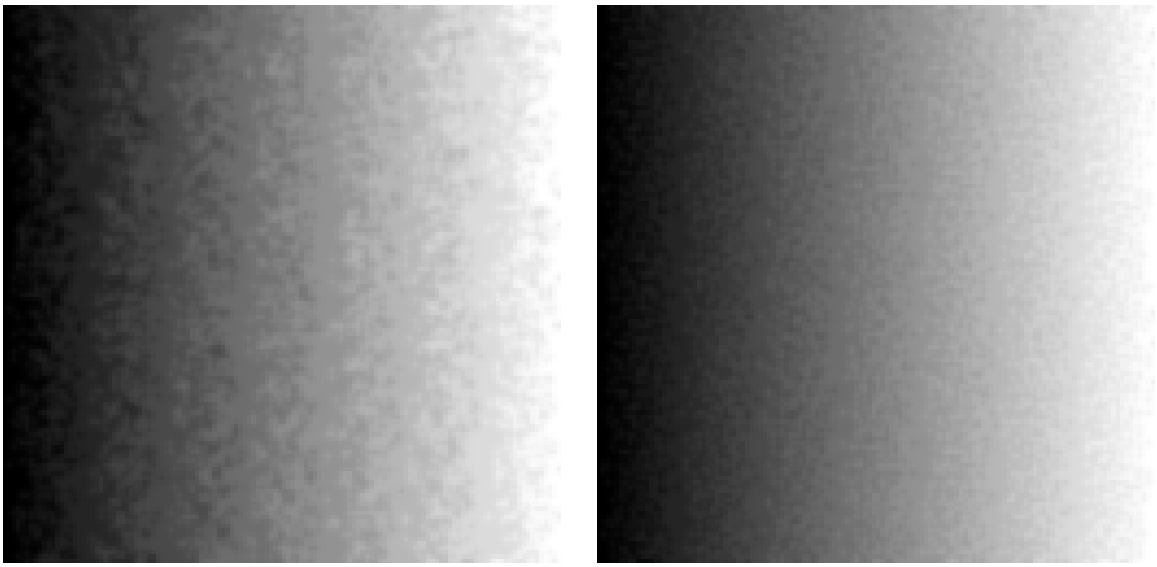
```
Export["2dwhitenoisevsbluenoise.gif",
  {MyTwoDimPeriodogram[blueNoise64 - 0.5], MyTwoDimPeriodogram[
    Table[RandomReal[], {x, 0, 63}, {y, 0, 63}] - 0.5]}, "DisplayDurations" → 2];
```

```
ListAnimate[{ArrayPlot[ditheredWhite, ColorFunction → GrayLevel],
  ArrayPlot[ditheredBlue, ColorFunction → GrayLevel]}]
```

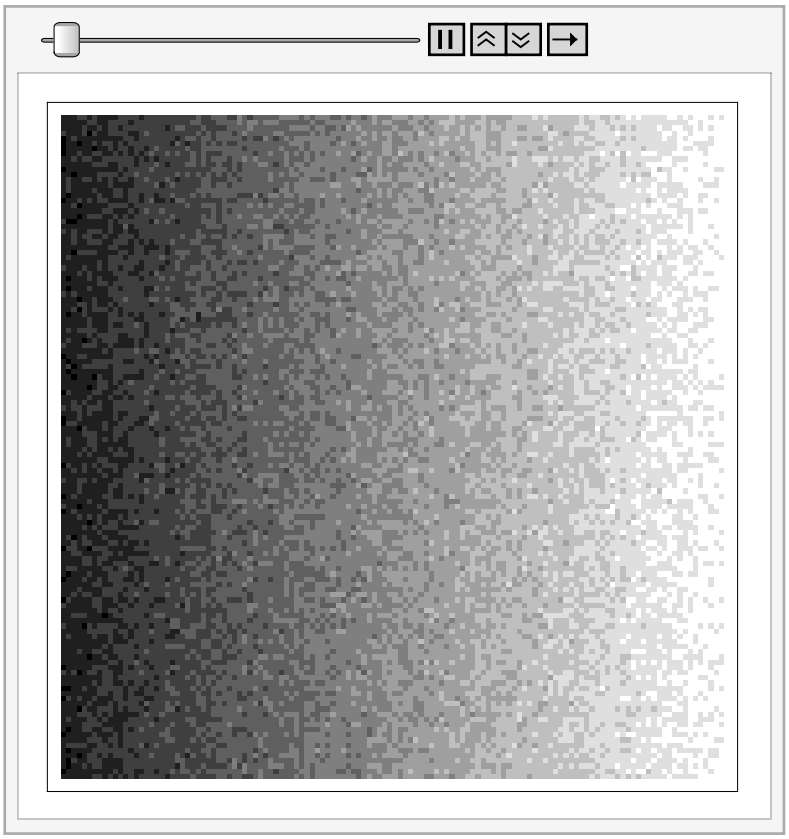


```
Export["2dwhitenoisevsbluenoise.gif",
  {ArrayPlot[ditheredWhite, ColorFunction → GrayLevel],
   ArrayPlot[ditheredBlue, ColorFunction → GrayLevel]}, "DisplayDurations" → 2];
```

```
GraphicsRow[
 {GaussianFilter[Image[ditheredWhite], 2], GaussianFilter[Image[ditheredBlue], 2]}]
```



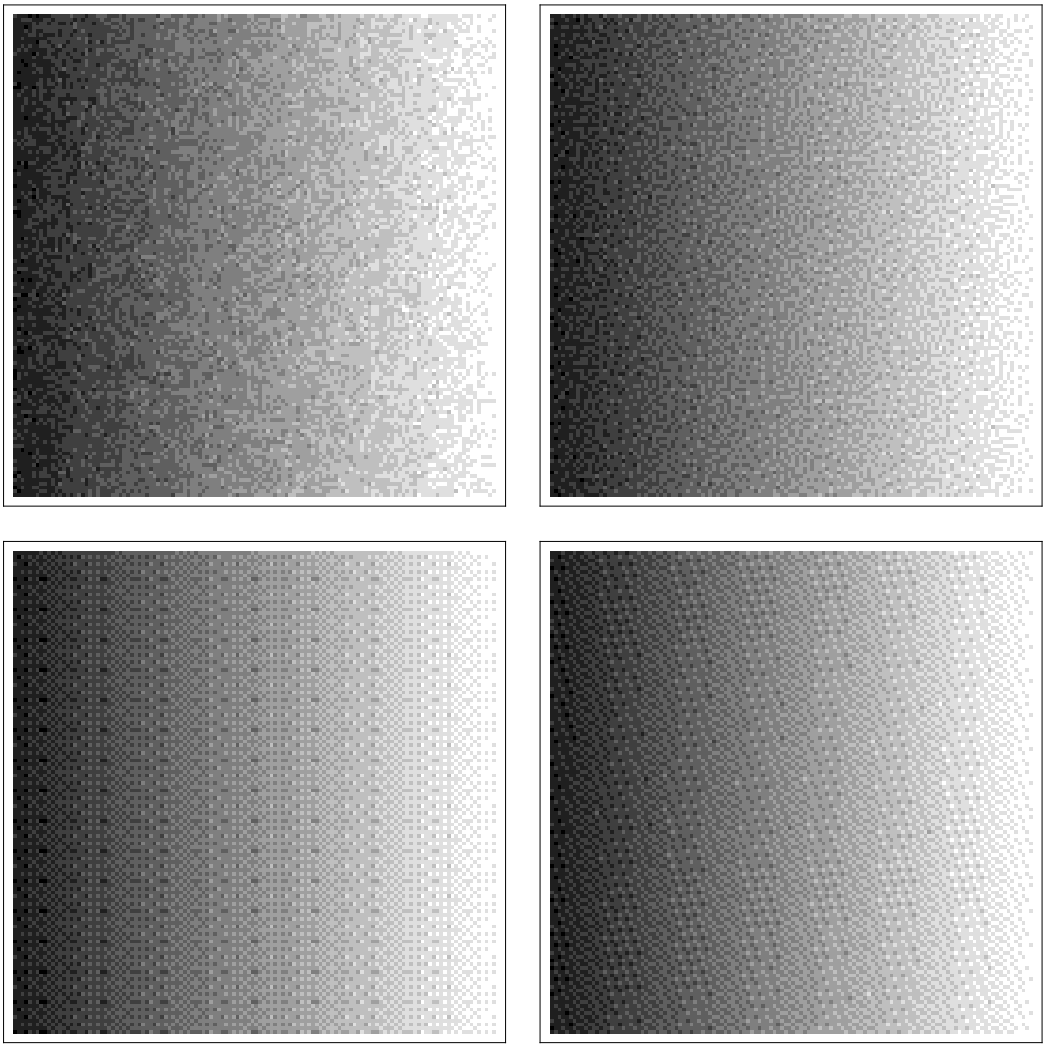
```
ListAnimate[
 {ArrayPlot[Map[QuantizeBits[#1, 3, (RandomReal[] + RandomReal[] - 1)] &, origSignal,
    {2}], ColorFunction → GrayLevel], ArrayPlot[MapIndexed[QuantizeBits[#1,
      3, remaptri[SampleArrayWithWrap[blueNoise64, #2[[1]], #2[[2]]]]] &,
    origSignal, {2}], ColorFunction → GrayLevel]}]
```



```
Export["2dwhitenoisevsbluenoisetriangle.gif",
  {ArrayPlot[Map[QuantizeBits[#1, 3, (RandomReal[] + RandomReal[] - 1)] &, origSignal,
     {2}], ColorFunction → GrayLevel], ArrayPlot[MapIndexed[QuantizeBits[#1,
       3, remaptri[SampleArrayWithWrap[blueNoise64, #2[[1]], #2[[2]]]]] &,
     origSignal, {2}], ColorFunction → GrayLevel]}, "DisplayDurations" → 2];
```

```
ditheredInterleavedRemap = MapIndexed[
   QuantizeBits[#1, 3, remaptri[InterleavedGradientNoise[#2[[1]], #2[[2]]]]] &,
   origSignal, {2}];
```

```
ditheredBayerRemap = MapIndexed[
   QuantizeBits[#1, 3, remaptri[SampleArrayWithWrap[bayer3, #2[[1]], #2[[2]]]]] &,
   origSignal, {2}];
ditheredWhiteRemap = Map[QuantizeBits[#1, 3, remaptri[RandomReal[]]] &,
   origSignal, {2}];

ditheredBlueRemap = MapIndexed[QuantizeBits[#1, 3, remaptri[
      SampleArrayWithWrap[blueNoise64, #2[[1]], #2[[2]]]]] &, origSignal, {2}];

GraphicsGrid[{{ArrayPlot[ditheredWhiteRemap, ColorFunction → GrayLevel],
   ArrayPlot[ditheredBlueRemap, ColorFunction → GrayLevel]},
  {ArrayPlot[ditheredBayerRemap, ColorFunction → GrayLevel],
   ArrayPlot[ditheredInterleavedRemap, ColorFunction → GrayLevel]}}]
```



```
Export["2ddithering allfourcomparedtriangular.gif",
  {ArrayPlot[ditheredWhiteRemap, ColorFunction → GrayLevel],
   ArrayPlot[ditheredBlueRemap, ColorFunction → GrayLevel],
   ArrayPlot[ditheredBayerRemap, ColorFunction → GrayLevel], ArrayPlot[
    ditheredInterleavedRemap, ColorFunction → GrayLevel]}, "DisplayDurations" → 2];
```