The constant π, a transcendental number

141 592 6535 897 932 3846 264 338 3279 502 884 1971 693 993 7510
582 097 4944 592 307 8164 062 862 0899 862 803 4825 342 117 0679
821 480 8651 328 230 6647 093 844 6095 505 822 3172 535 940 8128
481 117 4502 841 027 0193 852 110 5559 644 622 9489 549 303 8196
442 881 0975 665 933 4461 284 756 4823 378 678 3165 271 201 9091
456 485 6692 346 034 8610 454 326 6482 133 936 0726 024 914 1273
724 587 0066 063 155 8817 488 152 0920 962 829 2540 917 153 6436
789 259 0360 011 330 5305 488 204 6652 138 414 6951 941 511 6094
330 572 7036 575 959 1953 092 186 1173 819 326 1179 310 511 8548
074 462 3799 627 495 6735 188 575 2724 891 227 9381 830 119 4912

The constant π, a transcendental number

141 592 6535 897 932 3846 264 338 3279 502 884 1971 693 993 7510
582 097 4944 592 307 8164 062 862 0899 862 803 4825 342 117 0679
821 480 8651 328 230 6647 093 844 6095 505 822 3172 535 940 8128
481 117 4502 841 027 0193 852 110 5559 644 622 9489 549 303 8196
442 881 0975 665 933 4461 284 756 4823 378 678 3165 271 201 9091
456 485 6692 346 034 8610 454 326 6482 133 936 0726 024 914 1273
724 587 0066 063 155 8817 488 152 0920 962 829 2540 917 153 6436
789 259 0360 011 330 5305 488 204 6652 138 414 6951 941 511 6094
330 572 7036 575 959 1953 092 186 1173 819 326 1179 310 511 8548
074 462 3799 627 495 6735 188 575 2724 891 227 9381 830 119 4912

The constant π, a transcendental number

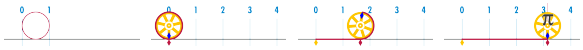
141 592 6535 897 932 3846 264 338 3279 502 884 1971 693 993 7510
582 097 4944 592 307 8164 062 862 0899 862 803 4825 342 117 0679
821 480 8651 328 230 6647 093 844 6095 505 822 3172 535 940 8128
481 117 4502 841 027 0193 852 110 5559 644 622 9489 549 303 8196
442 881 0975 665 933 4461 284 756 4823 378 678 3165 271 201 9091
456 485 6692 346 034 8610 454 326 6482 133 936 0726 024 914 1273
724 587 0066 063 155 8817 488 152 0920 962 829 2540 917 153 6436
789 259 0360 011 330 5305 488 204 6652 138 414 6951 941 511 6094
330 572 7036 575 959 1953 092 186 1173 819 326 1179 310 511 8548
074 462 3799 627 495 6735 188 575 2724 891 227 9381 830 119 4912

The constant π, a transcendental number

141 592 6535 897 932 3846 264 338 3279 502 884 1971 693 993 7510
582 097 4944 592 307 8164 062 862 0899 862 803 4825 342 117 0679
821 480 8651 328 230 6647 093 844 6095 505 822 3172 535 940 8128
481 117 4502 841 027 0193 852 110 5559 644 622 9489 549 303 8196
442 881 0975 665 933 4461 284 756 4823 378 678 3165 271 201 9091
456 485 6692 346 034 8610 454 326 6482 133 936 0726 024 914 1273
724 587 0066 063 155 8817 488 152 0920 962 829 2540 917 153 6436
789 259 0360 011 330 5305 488 204 6652 138 414 6951 941 511 6094
330 572 7036 575 959 1953 092 186 1173 819 326 1179 310 511 8548
074 462 3799 627 495 6735 188 575 2724 891 227 9381 830 119 4912

The constant π, a transcendental number

141 592 6535 897 932 3846 264 338 3279 502 884 1971 693 993 7510
582 097 4944 592 307 8164 062 862 0899 862 803 4825 342 117 0679
821 480 8651 328 230 6647 093 844 6095 505 822 3172 535 940 8128
481 117 4502 841 027 0193 852 110 5559 644 622 9489 549 303 8196
442 881 0975 665 933 4461 284 756 4823 378 678 3165 271 201 9091
456 485 6692 346 034 8610 454 326 6482 133 936 0726 024 914 1273
724 587 0066 063 155 8817 488 152 0920 962 829 2540 917 153 6436
789 259 0360 011 330 5305 488 204 6652 138 414 6951 941 511 6094
330 572 7036 575 959 1953 092 186 1173 819 326 1179 310 511 8548
074 462 3799 627 495 6735 188 575 2724 891 227 9381 830 119 4912



The constant π, a transcendental number

141 592 6535 897 932 3846 264 338 3279 502 884 1971 693 993 7510
582 097 4944 592 307 8164 062 862 0899 862 803 4825 342 117 0679
821 480 8651 328 230 6647 093 844 6095 505 822 3172 535 940 8128
481 117 4502 841 027 0193 852 110 5559 644 622 9489 549 303 8196
442 881 0975 665 933 4461 284 756 4823 378 678 3165 271 201 9091
456 485 6692 346 034 8610 454 326 6482 133 936 0726 024 914 1273
724 587 0066 063 155 8817 488 152 0920 962 829 2540 917 153 6436
789 259 0360 011 330 5305 488 204 6652 138 414 6951 941 511 6094
330 572 7036 575 959 1953 092 186 1173 819 326 1179 310 511 8548
074 462 3799 627 495 6735 188 575 2724 891 227 9381 830 119 4912

The constant π, a transcendental number

141 592 6535 897 932 3846 264 338 3279 502 884 1971 693 993 7510
582 097 4944 592 307 8164 062 862 0899 862 803 4825 342 117 0679
821 480 8651 328 230 6647 093 844 6095 505 822 3172 535 940 8128
481 117 4502 841 027 0193 852 110 5559 644 622 9489 549 303 8196
442 881 0975 665 933 4461 284 756 4823 378 678 3165 271 201 9091
456 485 6692 346 034 8610 454 326 6482 133 936 0726 024 914 1273
724 587 0066 063 155 8817 488 152 0920 962 829 2540 917 153 6436
789 259 0360 011 330 5305 488 204 6652 138 414 6951 941 511 6094
330 572 7036 575 959 1953 092 186 1173 819 326 1179 310 511 8548
074 462 3799 627 495 6735 188 575 2724 891 227 9381 830 119 4912

The constant π, a transcendental number

141 592 6535 897 932 3846 264 338 3279 502 884 1971 693 993 7510
582 097 4944 592 307 8164 062 862 0899 862 803 4825 342 117 0679
821 480 8651 328 230 6647 093 844 6095 505 822 3172 535 940 8128
481 117 4502 841 027 0193 852 110 5559 644 622 9489 549 303 8196
442 881 0975 665 933 4461 284 756 4823 378 678 3165 271 201 9091
456 485 6692 346 034 8610 454 326 6482 133 936 0726 024 914 1273
724 587 0066 063 155 8817 488 152 0920 962 829 2540 917 153 6436
789 259 0360 011 330 5305 488 204 6652 138 414 6951 941 511 6094
330 572 7036 575 959 1953 092 186 1173 819 326 1179 310 511 8548
074 462 3799 627 495 6735 188 575 2724 891 227 9381 830 119 4912

The constant π, a transcendental number

141 592 6535 897 932 3846 264 338 3279 502 884 1971 693 993 7510
582 097 4944 592 307 8164 062 862 0899 862 803 4825 342 117 0679
821 480 8651 328 230 6647 093 844 6095 505 822 3172 535 940 8128
481 117 4502 841 027 0193 852 110 5559 644 622 9489 549 303 8196
442 881 0975 665 933 4461 284 756 4823 378 678 3165 271 201 9091
456 485 6692 346 034 8610 454 326 6482 133 936 0726 024 914 1273
724 587 0066 063 155 8817 488 152 0920 962 829 2540 917 153 6436
789 259 0360 011 330 5305 488 204 6652 138 414 6951 941 511 6094
330 572 7036 575 959 1953 092 186 1173 819 326 1179 310 511 8548
074 462 3799 627 495 6735 188 575 2724 891 227 9381 830 119 4912

The constant π, a transcendental number

141 592 6535 897 932 3846 264 338 3279 502 884 1971 693 993 7510
582 097 4944 592 307 8164 062 862 0899 862 803 4825 342 117 0679
821 480 8651 328 230 6647 093 844 6095 505 822 3172 535 940 8128
481 117 4502 841 027 0193 852 110 5559 644 622 9489 549 303 8196
442 881 0975 665 933 4461 284 756 4823 378 678 3165 271 201 9091
456 485 6692 346 034 8610 454 326 6482 133 936 0726 024 914 1273
724 587 0066 063 155 8817 488 152 0920 962 829 2540 917 153 6436
789 259 0360 011 330 5305 488 204 6652 138 414 6951 941 511 6094
330 572 7036 575 959 1953 092 186 1173 819 326 1179 310 511 8548
074 462 3799 627 495 6735 188 575 2724 891 227 9381 830 119 4912

The number π is approximately 3: $\pi = 3.141\ldots$ A good **approximation** is $\pi \approx 22/7$, and an even better one is $\pi \approx 355/113$. These are obtained by truncating the **continued fraction expansion** of π. The symbol is a letter from the Greek alphabet and is pronounced like "pie". Each year on the 14th of March, fans celebrate the international π day. Starting at the 762nd decimal place, **six nines** occur in the digits of π. The **circumference** of a circle with radius r is $2\pi r$. Its **area** is πr^2. The **volume** of a sphere with radius r is $\frac{4}{3}\pi r^3$. The number π is **irrational**, so not equal to any quotient of integers; furthermore, it is **transcendent**, so not a solution of any polynomial equation. **Open question:** Do the ten digits occur equally often in the decimal expansion of π?

$$1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \frac{1}{9} - \ldots = \frac{\pi}{4} \qquad 0 = e^{i\pi} + 1 \qquad \pi = \int_{-\infty}^{\infty} \frac{dx}{1+x^2}$$

$$\frac{2}{1} \cdot \frac{2}{3} \cdot \frac{4}{3} \cdot \frac{4}{5} \cdot \frac{6}{5} \cdot \frac{6}{7} \cdot \frac{8}{7} \cdot \frac{8}{9} \cdot \ldots = \frac{\pi}{2} \qquad \chi(M) = \frac{1}{2\pi} \int_M K\, dA \qquad f(z) = \frac{1}{2\pi i} \oint \frac{f(\zeta)}{\zeta - z}\, d\zeta$$

The number π is approximately 3: $\pi = 3.141\ldots$ A good **approximation** is $\pi \approx 22/7$, and an even better one is $\pi \approx 355/113$. These are obtained by truncating the **continued fraction expansion** of π. The symbol is a letter from the Greek alphabet and is pronounced like "pie". Each year on the 14th of March, fans celebrate the international π day. Starting at the 762nd decimal place, **six nines** occur in the digits of π. The **circumference** of a circle with radius r is $2\pi r$. Its **area** is πr^2. The **volume** of a sphere with radius r is $\frac{4}{3}\pi r^3$. The number π is **irrational**, so not equal to any quotient of integers; furthermore, it is **transcendent**, so not a solution of any polynomial equation. **Open question:** Do the ten digits occur equally often in the decimal expansion of π?

$$1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \frac{1}{9} - \ldots = \frac{\pi}{4} \qquad 0 = e^{i\pi} + 1 \qquad \pi = \int_{-\infty}^{\infty} \frac{dx}{1+x^2}$$

$$\frac{2}{1} \cdot \frac{2}{3} \cdot \frac{4}{3} \cdot \frac{4}{5} \cdot \frac{6}{5} \cdot \frac{6}{7} \cdot \frac{8}{7} \cdot \frac{8}{9} \cdot \ldots = \frac{\pi}{2} \qquad \chi(M) = \frac{1}{2\pi} \int_M K\, dA \qquad f(z) = \frac{1}{2\pi i} \oint \frac{f(\zeta)}{\zeta - z}\, d\zeta$$