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The number  $\pi$  is approximately 3:  $\pi=3.141\ldots$  A good approximation is  $\pi\approx22/7$ , and an even better one is  $\pi\approx355/113$ . These are obtained by truncating the continued fraction expansion of  $\pi$ . 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  $\pi$  day. Starting at the 762nd decimal place, six nines occur in the digits of  $\pi$ . The circumference of a circle with radius r is  $2\pi r$ . Its area is  $\pi r^2$ . The volume of a sphere with radius r is  $\frac{4}{3}\pi r^3$ . The number  $\pi$  is irrational, so not equal to any quotient of integers; furthermore, it is transcendental, so not a solution of any polynomial equation. Open question: Do the ten digits occur equally often in the decimal expansion of  $\pi$ ?

$$\begin{split} 1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \frac{1}{9} - \ldots &= \frac{\pi}{4} & 0 = \mathrm{e}^{i\pi} + 1 & \pi = \int \limits_{-\infty}^{\infty} \frac{dx}{1 + x^2} \\ \frac{2}{1} \cdot \frac{2}{3} \cdot \frac{4}{3} \cdot \frac{4}{5} \cdot \frac{6}{5} \cdot \frac{6}{7} \cdot \frac{8}{7} \cdot \frac{8}{9} \cdot \ldots &= \frac{\pi}{2} \quad \chi(M) = \frac{1}{2\pi} \int_{M} K \, dA \quad f(z) = \frac{1}{2\pi i} \oint \frac{f(\zeta)}{\zeta - z} \, d\zeta \end{split}$$

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