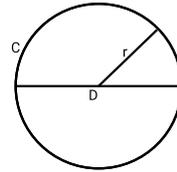

tau or pi ? You choose !

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1 Going around in circles

The most natural way to describe a circle would be to use its “width” (diameter) or its circumference (D or C respectively). These two are related mathematically by the expression



$$C = \pi * D \quad (1)$$

Mathematicians also use an artificial object called “radius” to recast the above equation.

$$C = 2 * \pi * r \quad (2)$$

where $D = 2 * r$

If we call $2 * \pi$ as τ , the equation (2) becomes :

$$C = \tau * r \quad (3)$$

In both cases, we encounter the enigmatic constant π .

π is a nightmare to many, because :

1. π is an “irrational” number. Which means it can never be expressed as p/q where p and q are whole numbers (aka integers).

Writing π as $22/7$ is always a (very bad) approximation. Some school teachers make the classic blunder of writing (and teaching) $\pi = 22/7$, whereas they should be strictly using $\pi \approx 22/7$. They are usually ignorant of the fact there is a much better approximation to π .

¹All texts shown in [winered](#) color are clickable hyperlinks.

The value $355/113$, due to the Chinese mathematician Zu Chongzhi in the 5th century CE, gives the value of π correct to six decimal places. This approximation is also attributed to the Indian mathematician Srinivasa Ramanujan.

2. π is a “transcendental” number. When written using decimal numerals, it will continue infinitely without repetition or pattern. It is rarely necessary to use decimal digits to denote π , it is usually enough to use π as it is.

τ also retains the same properties as π above. Like π , τ is “irrational” and “transcendental”.

However τ is more “natural” and intuitional to many, since a diameter (width) is more direct to visualise than a radius.

If we express π and τ as decimal numbers and retain only the first three significant digits, we get:

$$\pi \approx 3.14$$

$$\tau \approx 6.28$$

2 Pi Day (IDM)

In the US, 14th of March is written as 3.14 and is celebrated as Pi Day (<https://www.piday.org/>). It was subsequently baptised as International Day of Mathematics (IDM). Following some populist opinion, the International Mathematical Union (IMU) chose π as the basis of the International Day of Mathematics (IDM) (<https://www.idm314.org/>).

3 Tau day

Tau Day (<https://tauday.com/>) is a celebration of the circle constant $\tau = C/r = 6.283185$ which may be rounded off to two decimals as 6.28. Tau Day takes place annually on June 28 (6/28 in the American calendar system).

4 Un-conclusion

Whether to celebrate Pi Day or Tau day is a matter of opinion and personal whim. You can choose whatever appeals to you most.

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