Knitting Pi & Tau coasters

Pi, Tau and radians

Pi is represented by the Greek letter π and is defined as the ratio of a circle's circumference divided by its diameter. Amazingly, it doesn't matter what the size of the circle is, the ratio of the circumference to the diameter will always be π.

$$\pi = \frac{\text{circumference}}{\text{diameter}}$$

π is approximately equal to 3.14159265358979323846… The digits go on forever with no pattern. Pi has been calculated to trillions of decimal places and still there is no pattern to the digits! It is what we call an irrational number.

Radians, like degrees, are a way of measuring angles. One radian is equal to the angle made when the arc opposite the angle is equal to the radius of the circle, as shown in the diagram below. [1]

[1] Image from https://simple.wikipedia.org/wiki/Radian
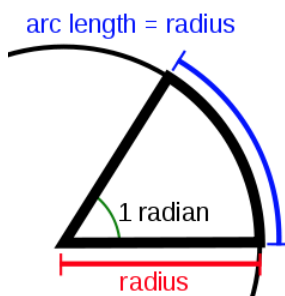
In a full circle, we have 2π radians (which is the same as 360º).

A less known constant is **tau**. It is represented by the Greek letter **τ** and is the ratio between a circle's circumference and its radius.

$$\text{So } \tau = \frac{\text{circumference}}{\text{radius}} = 2\pi.$$

The table below shows some standard angles in degrees and radians. The radians are expressed in terms of π and τ.

Degrees	Radians using π	Radians using τ
360 (full circle)	2 π	τ
180 (half circle)	π	τ/2
90 (quarter circle)	π/2	τ/4

Some people feel very strongly that tau should be used instead of pi as it makes the measure of radians more intuitive and elegant.

You can pick a camp and knit a pi or tau coaster accordingly, or just do both! In any case, we hope you enjoy knitting the coasters.

Pi coaster

Key: K= Knit, P=Purl

Using 4mm needles and yarn, **cast on 20 stitches**.

Row	
1-3	K20
4	K2 P16 K2
5	K20
6	K2 P16 K2
7	K6 P2 K4 P2 K6
8	K2 P5 K2 P2 K4 P3 K2
9	K5 P1 K1 P2 K2 P2 K7
10	K2 P5 K2 P2 K2 P5 K2
11	K7 P2 K2 P2 K7
12	K2 P5 K2 P2 K2 P5 K2
13	K7 P2 K2 P2 K7
14	K2 P5 K2 P2 K2 P5 K2
15	K7 P2 K2 P2 K7
16	K2 P5 K2 P2 K2 P5 K2
17	K5 P11 K4
18	K2 P3 K11 P2 K2
19	K20
20	K2 P16 K2
21-24	K20

Cast off all stitches. Lightly steam the knitted square and weave in ends.

Tau Coaster

Key: K= Knit, P=Purl

Using 4mm needles and yarn, cast on 20 stitches.

Row	
1-3	K20
4	K2 P16 K2
5	K20
6	K2 P16 K2
7	K9 P2 K9
8	K2 P6 K4 P6 K2
9	K7 P2 K1 P2 K8
10	K2 P6 K2 P2 K1 P5 K2
11	K10 P2 K8
12	K2 P6 K2 P8 K2
13	K10 P2 K8
14	K2 P6 K2 P8 K2
15	K10 P2 K8
16	K2 P3 K1 P2 K2 P8 K2
17	K8 P7 K5
18	K2 P4 K8 P4 K2
19	K20
20	K2 P16 K2
21-24	K20

Cast off all stitches. Lightly steam the knitted square and weave in ends.