

Risp 4: Periodic Functions

Write down a periodic function...

Then another...

Then another...

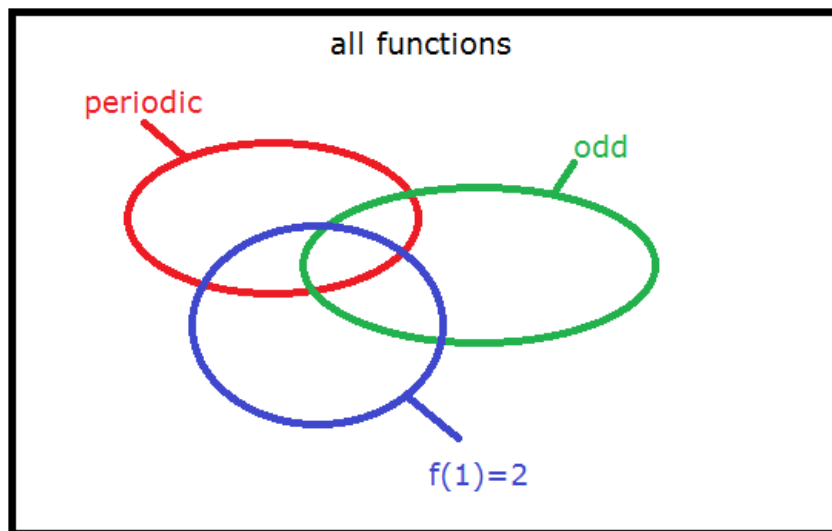
Can you write down a periodic function with period 10?

And another?

And another?

What do we mean by 'the period of a function'?

Can you place a function into each of the regions below?



Given a periodic function f , let us call its period ' $\text{per}(f)$ '.

Pick two prime numbers p and q .

If $\text{per}(f) = p$, and $\text{per}(g) = q$, what is $\text{per}(f + g)$?

If you add two periodic functions, do you always get a periodic function?

Suppose that f and g are periodic functions.

Are the following statements always true, sometimes true or never true?

1. $\text{per}(f \times g) = \text{per}(f) \times \text{per}(g)$
2. $\text{per}(kf) = k \text{per}(f)$
3. $\text{per}(f + g) = \text{per}(f) + \text{per}(g)$ [hard!]