

## Challenge #11

### The Race

Tartaglia Turtle, Riemann Rabbit and Galloping Galois entered a race.

Tartaglia decided that keeping a constant speed would be a good strategy, so he started at the beginning at a steady 10 meters per minute.

Riemann decided to start slowly, 3 meters per minute and double his speed every minute.

Galloping Galois in a burst of energy starts out at 30 meters per minute and each minute after that he slows by 5 mpm, eventually exhausting himself.

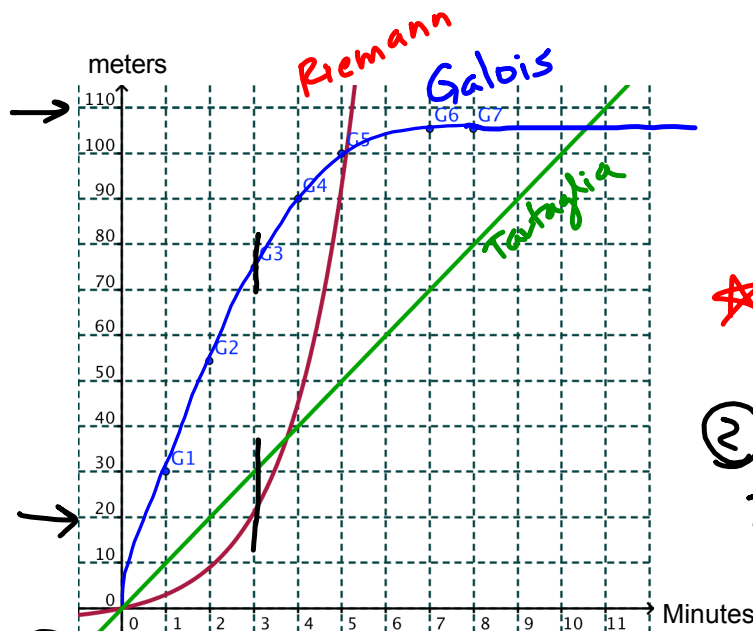
Who wins the race?

## Challenge #11 Solution

Tartaglia : steady 10 meters per minute.

Riemann : start at 3 meters per minute and double speed every minute.

Galois: start at 30 meters per minute and each minute after that slows down by 5 mpm.



① If they race

for 3 minutes,

$R = 20$  meters

★  $G = 75$  meters

$T = 30$  meters

② If they run for

20 meters, then

$R \sim 3$  mins

★  $G \sim \frac{1}{2}$  min

$T \sim 2$  min

③ If they run 110 meters,

then ★  $R \sim 5.2$  mins.

$G \sim$  never gets there

$T \sim 11$  mins