

## Weekly Question (5 Dec)

Bolt, Blake and Gatlin raced each other in a 100 metres race. All of them ran at **constant speeds** throughout the race.

**Bolt beat Blake by 10 metres** while **Blake beat Gatlin by 5 metres**.

How many metres did Bolt beat Gatlin by?

### Solution:

Since speed is constant, **Blake ran 90 m** when Bolt completed the 100 m race.

Ratio of Bolt's speed to Blake's speed  $\rightarrow 100 : 90 = \mathbf{10 : 9}$

Similarly, **Gatlin ran 95 m** when Blake completed the 100 m race.

Ratio of Blake's speed to Gatlin's speed  $\rightarrow 100 : 95 = \mathbf{20 : 19}$

	<u>Bolt</u>	:	<u>Blake</u>	:	<u>Gatlin</u>
Ratio of speed	10	:	9	:	
	$\times 20$	:	$\times 20$	:	
		:	20	:	19
		:	$\times 9$	:	$\times 9$
<hr/>					
	200	:	180	:	171
	$\div 2$				$\div 2$
	100 m				85.5 m

From the ratio of Bolt's speed to Gatlin's speed, when Bolt completed the 100 m race, Gatlin ran 85.5 m. Hence, Bolt beat Gatlin by  $100 - 85.5 = \mathbf{14.5 m}$ .