



100m SPRINT

NUMBER SKILLS 1

NETWORK INFRASTRUCTURE

DID YOU KNOW? Cisco's network infrastructure at London 2012 is capable of transmitting over 10 GB of information each second. In the time it takes Usain Bolt to run the 100 m you could download the entire contents of Wikipedia. Twice.

FRACTIONS AND DECIMALS

The first sprinter to run the 100 m in less than 10 seconds at an Olympic Games was the USA's Jim Hines. At Mexico City 1968 he won Gold in 9.95 seconds.

- An athlete leaves the starting blocks $\frac{1}{5}$ of a second after the starting gun is fired. Write $\frac{1}{5}$ as a decimal number.
- Write 9.95 as a mixed number.
 - By how much did Jim Hines break the 10-second barrier? Give your answer in seconds as a decimal number.
 - Write your answer to part **b** as a fraction in lowest terms.
- Jim Hines' time was set with a tailwind of 1.6 m/s. This might have reduced his 100 m time by $\frac{3}{25}$ second. Use this value to estimate what Hines' 100 m time would have been with no wind.

MIXED NUMBERS

In the 4×100 m relay, four sprinters each run 100 m. In legs 2, 3 and 4 the sprinters can start with a run-up so their 100 m times are quicker.

This table shows the times of each leg in a 4×100 m relay race.

	Leg 1 (s)	Leg 2 (s)	Leg 3 (s)	Leg 4 (s)
Team 1	9.81	9.30	8.94	9.22
Team 2	10.02	$9\frac{1}{10}$	$8\frac{4}{5}$	$9\frac{1}{4}$
Team 3	9.85	$8\frac{17}{20}$	$9\frac{1}{2}$	9.39

- Write down
 - the fastest leg run in the race
 - the slowest leg run in the race.
- Which team won the relay race? Show all of your working.

Usain Bolt won Gold Medals in the 100 m and the 200 m at the Beijing 2008 Games, setting new world records in both events. Will he do it again at London 2012?

SOLVING FRACTION PROBLEMS

After Usain Bolt's 100 m triumph at Beijing 2008, his father revealed his Gold Medal-winning diet secret: yams. Bolt even has custom-made trainers designed to be the same colour as the high-energy root vegetable!



- A sprinter eats $\frac{3}{8}$ kg of yams each day. How many kilograms of yams should he bring to London to see him through the 15 days of the 2012 Games?
- In a typical meal for an athlete:
 - $\frac{3}{5}$ is protein
 - $\frac{1}{10}$ is fat
 - the rest is carbohydrate.
 An athlete's lunch contains 225 g of carbohydrate. How much protein is there in this meal?
- A bowl of spicy yam soup contains 210 calories. $\frac{2}{7}$ of these calories come from fat. 15% of the fat calories are from saturated fat. Work out the number of calories from unsaturated fat in a bowl of spicy yam soup.



PARALYMPIC HEROES

Double amputee Oscar Pistorius won 3 Gold Medals at Beijing 2008. His carbon fibre artificial limbs have earned him the nickname 'Blade Runner'.