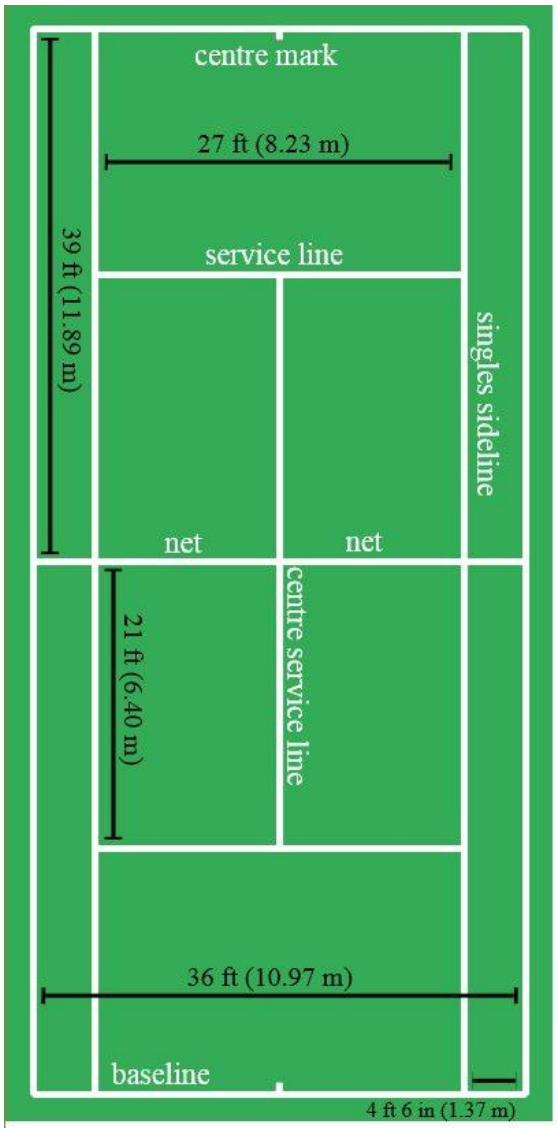
Maths with Graham

Basic Maths made easy!

Wimbledon Tennis



Scale Drawing Question.

Using the measurements in this sketch make an accurate scale drawing of a tennis court on some A4 graph paper. Choose a sensible scale so that the diagram takes up most of the page.

Answer these questions.

Entry Level

How far is it from one baseline to the other? Give your answer in metres.

How many centimetres is this?

How wide is the singles court? (don't include the tramlines)

How wide is the doubles court? (include the "tramlines")

GCSE Question.

How long is the diagonal from one corner of the doubles court to the opposite corner?

a) Work this out by measuring your scale drawing. Give your answer to the nearest metre.

b) Check your answer by using Pythagoras Theorem. Give your answer in metres to 2 decimal places.

Entry Level Questions

Look at these statistics from the 2015 Wimbledon final.

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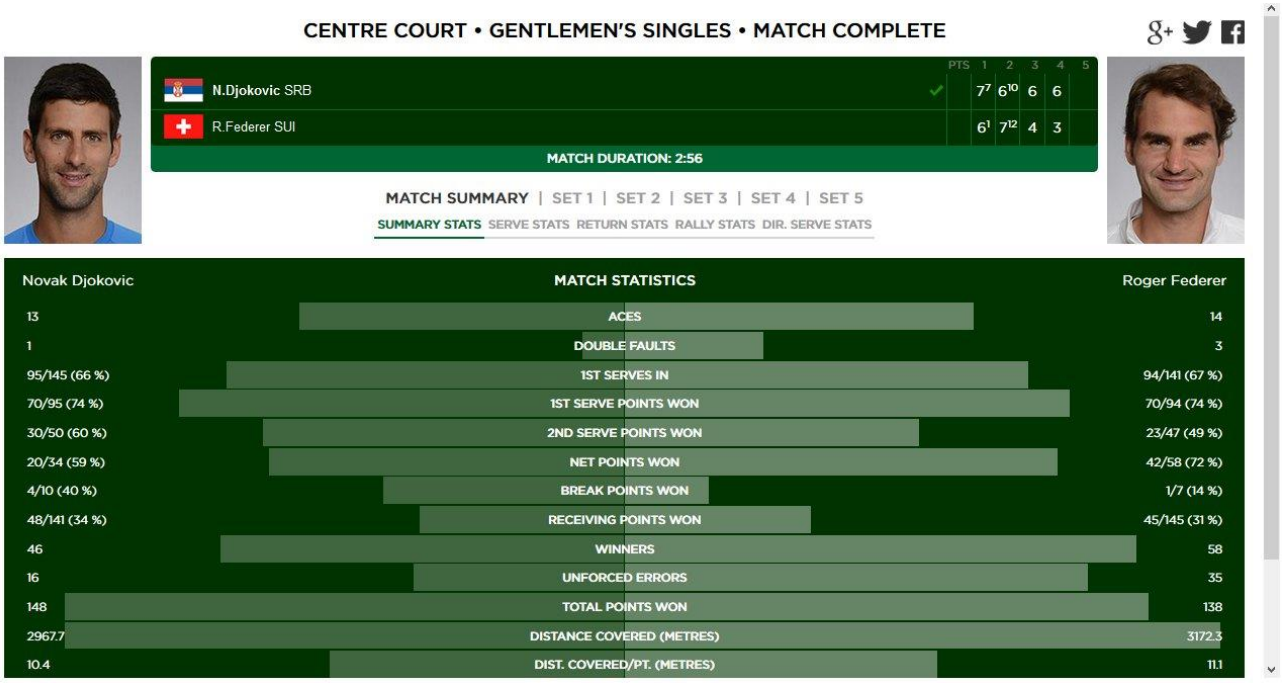


(Image from http://www.wimbledon.com/en_GB/scores/stats/day21/1701ms.html with permission)

Who won the 2015 final?

Who served the most Aces?

Who served the most double faults?

Level 1 Questions

How many minutes did the match last?

A football match usually lasts 90 minutes. Roughly how many football matches long was the Wimbledon final?

Djokovic won 59% of his net points. What percent did he lose?

Federer only won one seventh of his break points. What fraction did he lose? Write your answer in words.

How many more unforced errors did Federer make than Djokovic?

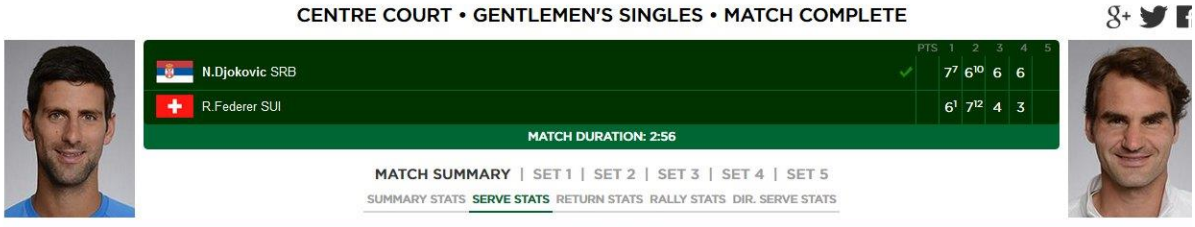
What was the total distance covered by the two men during the match?

What is this in kilometres rounded to the nearest kilometre?

What was the average distance covered by the two finalists?

If you were Federer's coach which of these statistics would you advise him to try to improve on next time he plays?

Look at the serve statistics.



CENTRE COURT • GENTLEMEN'S SINGLES • MATCH COMPLETE

	PTS	1	2	3	4	5
N.Djokovic SRB	✓	7[7]	6[10]	6	6	
R.Federer SUI		6[1]	7[12]	4	3	

MATCH DURATION: 2:56

MATCH SUMMARY | SET 1 | SET 2 | SET 3 | SET 4 | SET 5

SUMMARY STATS SERVE STATS RETURN STATS RALLY STATS DIR. SERVE STATS

N.Djokovic SRB TOTAL	N.Djokovic SRB 1ST SERVE	N.Djokovic SRB 2ND SERVE	MATCH STATISTICS	R.Federer SUI 2ND SERVE	R.Federer SUI 1ST SERVE	R.Federer SUI TOTAL
13	-	-	ACES	-	-	14
4	-	-	SERVICE WINNERS	-	-	3
1	-	-	DOUBLE FAULTS	-	-	3
145	95	50	TOTAL POINTS	47	94	141
100	70	30	TOTAL POINTS WON	23	70	93
21	-	-	SERVICE GAMES	-	-	24
111 MPH	119 MPH	96 MPH	AVERAGE SERVE SPEED	102 MPH	117 MPH	112 MPH
127 MPH	127 MPH	111 MPH	FASTEST SERVE SPEED	113 MPH	126 MPH	126 MPH

(Image from http://www.wimbledon.com/en_GB/scores/stats/day21/1701ms.html used with permission)

Entry Level Questions

Who served the fastest serve?

What speed was it?

Is this speed closest to A a car on the motorway B an intercity train C Usain Bolt or D a bullet?

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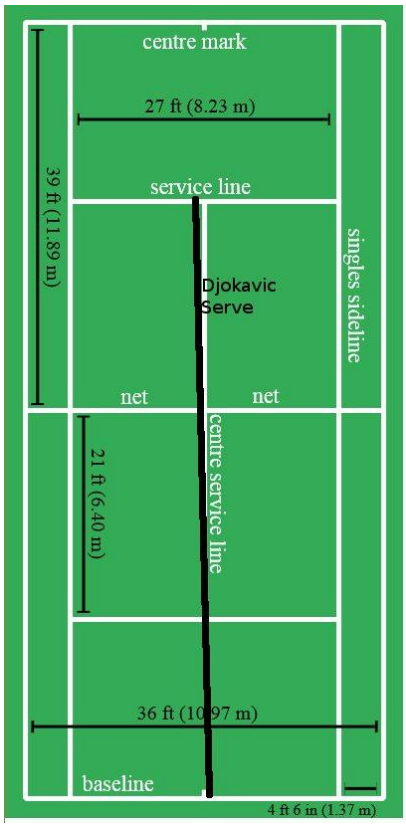
Level 1 Questions

5 miles is equal to 8 km. What was the speed in km/hour? (Give your answer to the nearest km/h)

Level 2 Questions

Can you convert this speed to metres per second? (There are 1000 metres in a kilometre, 60 seconds in a minute and 60 minutes in an hour)



Assume this serve hits the service line (see diagram). What horizontal distance has it travelled? (Use your scale drawing to help you. Give your answer as accurately as possible in metres.

How long is the time between Djokovic hitting the ball and it bouncing on the line? (Give your answer to the nearest tenth of a second.)

GCSE questions

You may have spotted there is a problem with our logic for the previous answer. We have only calculated the horizontal distance. To get an accurate answer we also need to take into account the vertical distance. Assume when Djokovic hits the ball it is 3m above the ground. Draw and label a right angled triangle to show the distance the ball travels. Use Pythagoras Theorem to calculate this distance, giving your answer to 2 decimal places.

Use your answer to find more accurately the time taken between the ball being hit and it bouncing on the line. (Give your answer to the nearest tenth of a second.)

Did ignoring the vertical distance make a difference to our final answer?