



INTERNATIONAL TENNIS HALL OF FAME

Game, Set, Math

Unit Overview: As students work through the activities in this unit they will be introduced to many important figures within the world of tennis. They will explore, through varied learning experiences and activities, these people's significance to the game of tennis as they are also afforded the opportunity to practice navigating word problems and the basic math functions of addition and subtraction. The activities that accompany this unit are geared towards students, at the older level, who seek intervention and practice with basic addition and subtraction and at the younger level, students who seek math enrichment opportunities. For all levels this unit will offer practice accessing word problems and beyond math will allow students the circumstance to practice using a variety of "museum" resources to gather information.

Objectives:

- Students will be able to gain background knowledge of International Tennis Hall of Fame inductees through investigation of museum resources in the **Woolard Family Enshrinement Gallery**.
- Students will work cooperatively in a small group environment to complete the task of accessing information using the informational texts provided throughout the **Woolard Family Enshrinement Gallery**.
- Students will practice solving multistep word problems posed with whole numbers and having whole number answers using addition and subtraction.
- Students will practice fluently adding and subtracting multi-digit numbers
- Students will become familiar with the **Woolard Family Enshrinement Gallery**.

Math - Traditional Common Core State Standards Addressed

- Operations and Algebraic Thinking:
 - CCSS.Math.3.OA.D.8 Solve problems involving the four operations and identify and explain patterns in arithmetic
 - CCSS.Math.4.OA.A.3 Use the four operations with whole numbers to solve problems
 - CCSS.Math.5.NBT.A.1 Understand the place value system

- CCSS.Math 6.NS.B.3 Compute fluently with multi-digit numbers and find common factors and multiples
- CCSS.ELA RI.5.4 Craft and Structure
- CCSS.ELA RI.5.10 Range of Reading and Level of Text Complexity
- CCSS.ELA W.5.4 Production and Distribution of Writing
- CCSS.ELA L.5.6 Vocabulary Acquisition and Use

Induction (Math) Functions

(Focus on Word Problems and Addition/Subtraction)

Lessons (These should be completed over a 5 day time period)

1. Teacher will review 2-4 addition/subtraction word problems with students using the attached word problem rubrics to discuss quality of word problems and also complete the math operations presented in the word problem.
2. Teacher will familiarize students with the visual and information layout of the inductee plaques in the **Woolard Family Enshrinement Gallery**.
3. Students will be presented with 5 word problems that are specifically based on information from the **Woolard Family Enshrinement Gallery**. These word problems will be 'missing' vital information such as the birth dates of some of the Hall of Famers or their year of induction, etc. that the students will have to gather from the displays in the **Woolard Family Enshrinement Gallery** before they can complete the math operations within these problems.
4. After gathering the needed information to complete the word problems students will be expected to complete the math operations within the word problems.
5. Teacher will go over the word problems checking the math and showcasing the 'math vocabulary' within the word problems (i.e. total, sum, increase, decrease, remainder, difference, etc.)
6. Students will choose the names of two people of note from the **Woolard Family Enshrinement Gallery** and will be required to write their own original word problems (one addition and one subtraction) referring back to the appropriate word problem rubric to ensure that their original word problems are of sound quality in both wording and mathematical operations.
7. Students will modify word problems to leave out key information and allow a party to then seek out the omitted information from throughout the **Woolard Family Enshrinement Gallery** as they all were required to do in a previous lesson. Students will complete mathematical operations and then work with the author of the word problems to check the math work and solutions.

How to Solve Math Story Problems

- 1. Underline the question**
- 2. Circle the Key Words**
- 3. Will you +, -, x, or / ?**
- 4. Write down the math problem/
equation (ex. $56-14= ?$)**
- 5. Compute your answer**
- 6. Be sure to label the answer**
- 7. Check your work**

Subtraction

If you see these words or phrases-
subtract

How much more
How many are left
Decrease
Remainder
How many more
Increased by
Decreased by

Multiplication

If you see these words or phrases-
multiply

Product
A piece
Times
Of
How many
How much

Division

If you see these words or
phrases- divide

Quotient
How many times
Average
How many
Shared equally
Each
Part of

Addition

If you see these words or
phrases- add

Total
Increase
Sum
Together
In all
Both

Math Vocabulary

Math Problem Solving Rubric



Student Name: _____

Teacher Name: _____

Date: _____ Grade: _____

	4	3	2	1
Strategy/ Procedures	Uses an efficient and effective strategy to solve the problem.	Uses an effective strategy to solve the problem.	Uses a strategy to solve the problem but it is not effective.	Does not use a strategy to solve the problem.
Explanation	Explanation is detailed and clear.	Explanation is clear.	Explanation is a little difficult to understand, but includes critical components.	Explanation is difficult to understand and is missing several components OR was not included.
Mathematical Concepts	Shows complete understanding of the mathematical concepts used to solve the problem.	Shows substantial understanding of the mathematical concepts used to solve the problem.	Shows some understanding of the mathematical concepts needed to solve the problem.	Shows very limited understanding of the underlying concepts needed to solve the problem OR is not written.
Mathematical Terminology and Symbols	Advanced, correct terminology and symbols are used, making it very easy to understand what was done.	Correct terminology and symbols are used, making it easy to understand what was done.	Correct terminology and symbols are used, but it is sometimes not easy to understand what was done.	There is little use, or a lot of inappropriate use, of terminology and symbols.
Neatness and Organization	The work is presented in a neat, detailed, organized fashion that is easy to read.	The work is presented in a neat and organized fashion that is easy to read.	The work is presented in an organized fashion but may be hard to read.	The work appears sloppy and unorganized. It is hard to know what information goes together.

Name: _____

Date: _____

Writing Word Problem Rubric

	Criteria				Points
	4	3	2	1	
Organization	Information is logical and interesting to follow	Information is presented in a logical sequence	Some but not all information is organized in a logical sequence	Sequence of information is difficult to follow	—
Visuals	Drawing reinforces the word problem	Drawing is related to the word problem	Minimal effort given to drawing	No drawing included	—
Mechanics	No math and/or spelling errors	1 to 2 math and/or spelling errors	3 to 4 math and/or spelling errors	5 or more math and/or spelling errors	—
Content Knowledge	Student demonstrates full knowledge of assignment	Student is at ease with content but has some difficulty with the assignment	Student is able to demonstrate basic concepts but is uncomfortable with the assignment	Student does not understand assignment	—
Requirements	Student goes beyond the requirements	Student meets the requirements	Student hardly meets the requirements	Student does not meet the requirements	—
				Total	—

Teacher Comments:



Sample Word Problems

In a grand musical show, 1201 men and 1389 women participated. What is the total number of participants?

There are 3289 birds in a bird sanctuary. 1438 more birds join during the summer. Find the sum of birds in summer.

Clara withdraws \$6,789 from her account. The initial amount in her account was \$8,790. What is the remainder left in Clara's account after the withdrawal?

Kathy needs at least 2000 points to go to level 2 in a video game. She has only 1245 points in level 1. How many more points does she need to qualify for level 2?

Martina Hingis

b. 1980, Czechoslovakia



Photography by Melissa Bax

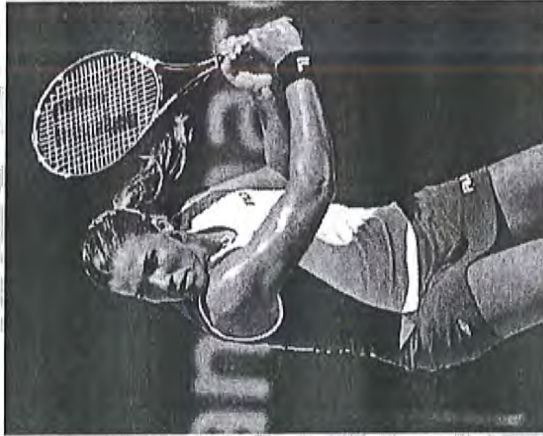
A masterful strategist blessed with almost incomparable court sense, excellent timing, and extraordinary ball control, Switzerland's Martina Hingis established herself not only as an exemplary champion but also an immensely popular performer everywhere she went. Across her sterling career, Hingis secured five Grand Slam singles championships, captured 80 titles in singles and doubles combined, and concluded three years as the No. 1 ranked player in the world. Her banner year was 1997, when she captured three of the four majors as a 16-year-old prodigy of rare verve and ingenuity.



INDUCTED 2013

Jennifer Capriati

b. 1976, United States



Photography by Michael Beaz

Enormously popular everywhere she ventured to play the game of tennis, Jennifer Capriati was among the finest female athletes of her era. An American with excellent groundstrokes and an unwavering competitive spirit, Capriati scaled the heights of her sport, capturing a gold medal by topping Steffi Graf in the final of the 1992 Olympic Games in Barcelona, winning three major singles championships at her zenith in 2001 and 2002, and achieving the highly coveted No. 1 world ranking, doing it all with considerable panache.



INDUCTED 2012

Blanche Bingley Hillyard

b. 1863, England



Photo courtesy of Wimbledon Lawn Tennis Museum

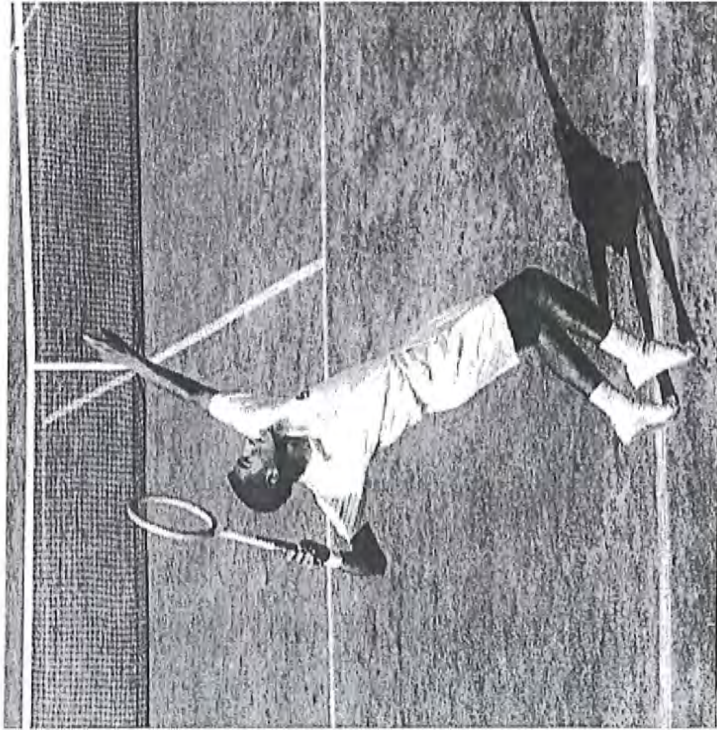
A six-time Wimbledon singles champion, Great Britain's Blanche Bingley Hillyard competed in the first ever ladies event on those hallowed lawns in 1884. Nearly three decades later she played Wimbledon for the last time. She won her first crown in 1886, and captured her last in 1900 at 36, establishing herself as the second oldest woman champion ever at the game's centerpiece event. Hillyard set a record for any Grand Slam event by appearing in 13 Wimbledon finals. She stands majestically in the pantheon of great British female competitors.



INDUCTED 2013

Alex Olmedo

b. 1936, Peru



The first player from Peru to reach the sport's upper echelons, Olmedo settled in California and made his mark all over the world as an exceedingly appealing court stylist with a congenial manner on and off the court. At 22 in 1958, he led the United States to victory in the Davis Cup, setting the stage for more towering successes in the ensuing years. He toppled the young Rod Laver to win Wimbledon in 1959, and was also victorious at the Australian Championships that same season. Olmedo excelled on the volley and was a superb fast-court player.



INDUCTED 0000

Approved

Name

Date

Gabriela Sabatini

b. 1970, Argentina



Photography by Michael Baz

Blessed with the looks of a movie star and a striking affinity for the game of tennis, Gabriela Sabatini was an exhilarating performer on the court. Primarily a topspin artist from the backcourt who owned a sweepingly beautiful backhand, Sabatini added dimensions to her game later in her career, learning to attack more frequently and demonstrating exceptional hands at the net. A member of the world's top ten for a decade (1986–95), she realized her full potential at the 1990 US Open when she ousted Steffi Graf with a sterling final-round display of her talent.



INDUCTED 0006

Approved

Name

Date

Thomas “Randy” Snow

b. 1959, United States



Photography by Gordon Gillespie, Newport

Growing up in Texas, Snow was progressing impressively as a tennis player. And yet, at 16 he suffered a farming accident that turned him into a paraplegic. Despite that devastating blow, Snow refused to be prevented from realizing his competitive potential. He pursued Wheelchair Tennis with utter determination, winning 22 Grand Slam championships in that forum, becoming the best player of his era. His exploits included gold medal showings in singles and doubles at the 1992 Paralympics in Barcelona. Snow's significance in the world of Wheelchair tennis is unassailable.



INDUCTED 2012

Pete Sampras

b. 1971, United States



Photography by Russ Adams

Driven by very powerful private engines to reach the summit in the world of tennis, Pete Sampras possessed one of the most formidable arsenals in the history of the game. An overwhelmingly effective serve-and-volleyer, no one could surpass his first-and-second-serve combination. Moreover, his running forehand was a trademark shot feared by every rival. Ranked No. 1 in the world for six consecutive years, he won 14 of 18 major finals. In the last official tennis match of his illustrious career, Sampras defeated rival Andre Agassi in the final of the 2002 US Open.

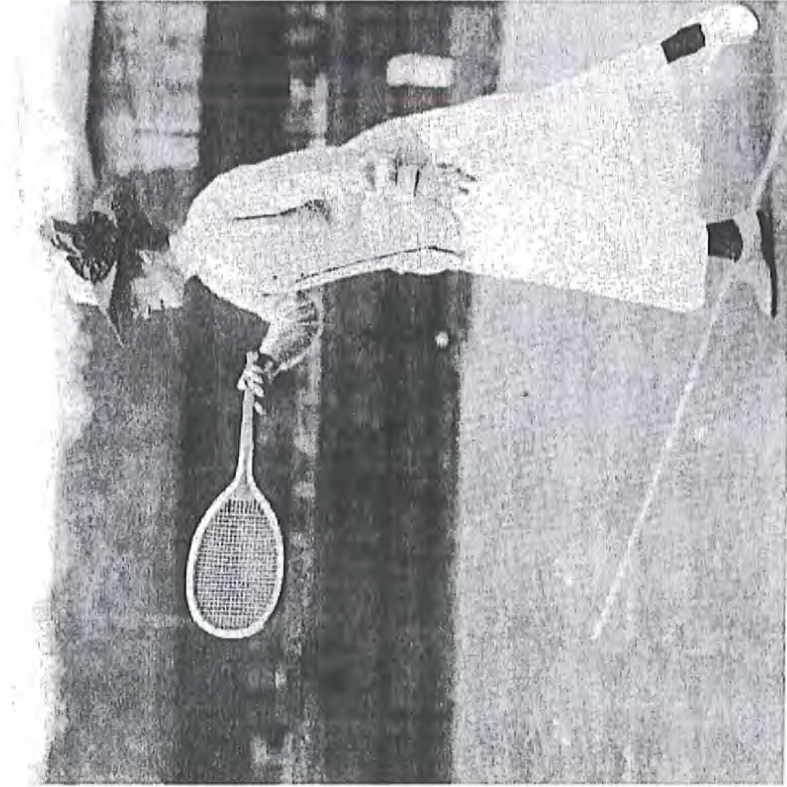


INDUCTED 0000

Approved	
Name	Date

Maud Barger-Wallach

b. 1870, United States



When Maud Barger-Wallach defeated Evelyn Sears to win the U.S. National Singles Championships in 1908, she was 38. She did not take up the game until she was nearly 30, but made up for lost time by exuberantly dedicating herself to the sport. A lifetime summer resident of Newport, Rhode Island, she loved playing on the grass courts. In 1909, she was runner-up to the evergreen Hazel Hotchkiss Wightman. Remarkably, she was a quarterfinalist at the U.S. Championships in 1916 at age 46.



INDUCTED 1958

Pancho Segura

b. 1921, Ecuador



Unabashedly devoted to the game as a player, coach, and observer, Pancho Segura has been fully appreciated only by those in the *cognoscenti*. Segura's explosive two-handed forehand was his signature shot, and his strategic acumen ranked second to none. Born and raised in Ecuador, he was a three time NCAA singles champion as a member of the University of Miami squad. He turned professional at 26 and was thrice the U.S. Pro champion from 1950-52. Segura put his tactical wizardry to use coaching Jimmy Connors in the 1970s. His analysis of top level matches was unsurpassed.



INDUCTED 0980

Approved

Name

Date

Bill Tilden

b. 1893, United States



A handsome genius with a full compendium of strokes, Bill Tilden reigned supreme over the world of tennis in the 1920s. He won a record seven U.S. Championships, played on a record seven consecutive victorious American Davis Cup squads, and held the No. 1 American ranking an unprecedented 10 times. Tilden was in many ways larger than the game he played, a master strategist who wrote probing instruction books that held up decades later. Exceedingly tall for a player of his era at 6'2", Tilden was a towering figure of almost ineffable greatness.



INDUCTED 0000

Approved

Name

Date

Marat Safin

b. 1980, Russia



Photo courtesy of AllTomMichael Cole

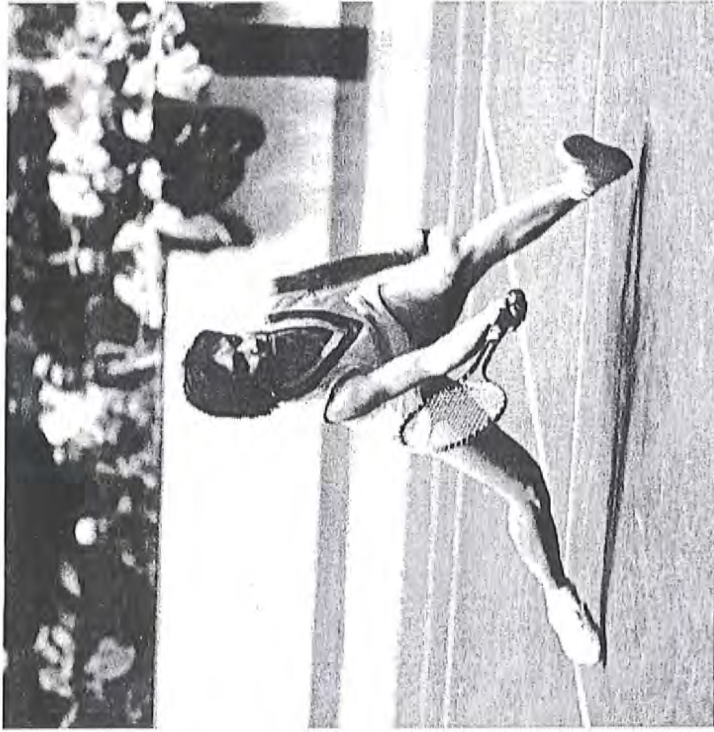
When Russian Marat Safin was at the height of his powers, he was one of the game's finest players. Capturing his first major title at the US Open in 2000, he toppled Pete Sampras in the final with an unimaginably shining performance. In 2005, Safin upended Roger Federer in the penultimate round before claiming the Australian Open crown over Lleyton Hewitt. He resided at No. 1 in the world, overpowered a sterling cast of adversaries with his explosive game, and built a substantial fan base over the years.



INDUCTED 2016

Rosie Casals

b. 1948, United States



As a pioneer of the women's professional game, she signed a contract with promoter Gladys Heldman in 1970 and won the first tournament on the newly formed female circuit. Casals was always near the top of her profession in singles and was an outstanding doubles player who won 12 majors, taking five of them with long time partner Billie Jean King. A sprightly competitor who stood barely above 5' 2" but built a large reputation for first-rate attacking play, she was enormously popular among her peers.

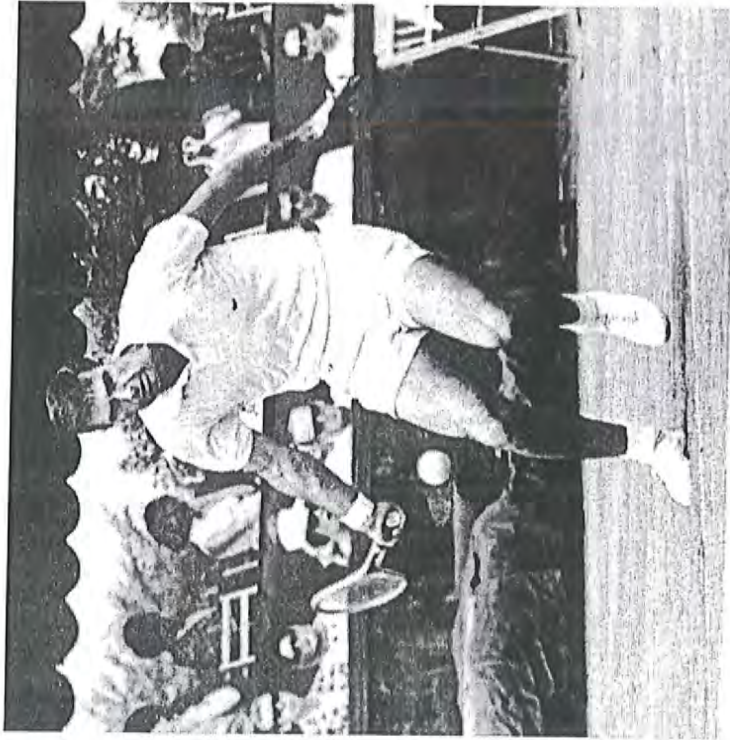


INDUCTED 1996

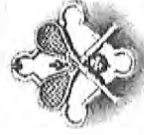
Approved	
Name	Date

Butch Buchholz

b. 1940, United States



An accomplished player who reached No. 5 in the world as an amateur in 1960, Buchholz turned professional in 1961 and was U.S. Pro champion the following season. He competed until early in the Open Era and then dedicated himself to other endeavors, becoming Executive Director of the ATP in 1981–82. But his largest contribution was as founder of the International Tennis Players Championships in Florida in 1985. That event, later the Sony Ericsson Open in Miami, has established itself as one of the world's premier tournaments.



INDUCTED 0008

Approved

Name

Date



Andre Agassi



Arthur Ashe



Bunny Austin



Tracy Austin



Boris Becker



Malcolm Chace



Joe Clark



Dodo Cheney



Lindsay Davenport



Owen Davidson



Lottie Dod



Reggie Doherty



Laurie Doherty



Shirley Fry



Arthur Gore



Bitsy Grant



Doris Hart



Helen Hull Jacobs

 Lew Hoad	 Bill Johnston
 Billie Jean King	 Jack Kramer
 Bill Larned	 Art Larsen
 Rod Laver	 Ivan Lendl
 George Lott	 Alice Marble
 Simonne Mathieu	 John McEnroe
 Kitty McKane Godfrey	 Gardnar Mulloy
 Martina Navratilova	 Betty Nuthall
 Frank Parker	 Dennis Ralston

 <p>William Renshaw</p>	 <p>Vinnie Richards</p>
 <p>Bobby Riggs</p>	 <p>Mervyn Rose</p>
 <p>Dorothy Round Little</p>	 <p>Elizabeth Ryan</p>
 <p>Dick Savitt</p>	 <p>Vic Seixas</p>
 <p>Monica Seles</p>	 <p>Pam Shriver</p>
 <p>Stan Smith</p>	 <p>May Sutton Bundy</p>
 <p>John Van Ryn</p>	 <p>Virginia Wade</p>
 <p>Helen Wills Moody</p>	 <p>Holcombe Ward</p>
 <p>Mark Woodforde</p>	 <p>Natasha Zvereva</p>

 <p>Karl Behr</p>	 <p>Norman Brookes</p>
 <p>Mabel Cahill</p>	 <p>Jimmy Connors</p>
 <p>Jack Crawford</p>	 <p>Roy Emerson</p>
 <p>Chris Evert</p>	 <p>Gigi Fernández</p>
 <p>Althea Gibson</p>	 <p>David Hall</p>
 <p>Justine Henin</p>	 <p>Fred Hovey</p>
 <p>Gustavo Kuerten</p>	 <p>Chuck McKinley</p>
 <p>Elisabeth Moore</p>	 <p>Yannick Noah</p>
 <p>Theodore Roosevelt Pell</p>	 <p>Tony Trabert</p>

Name: _____

Inductee Word Problems

Directions: Each word problem below is missing some very important inductee information. Explore the **Woolard Family Enshrinement Galley**. Look closely at the plaques of the inductees found within the galley. Find the missing inductee information found on the inductee plaques, fill in the missing information and solve the word problem. Use the workspace provided to help you solve the word problems.

Workspace

<p>Jennifer Capriati was born in [REDACTED]. She was inducted into the International Tennis Hall of Fame in 2012. If you decrease the year she was inducted by the year she was born, how old was Jennifer Capriati when she was inducted into the International Tennis Hall of Fame?</p> <p>Answer:= _____</p>	
<p>International Tennis Hall of Fame inductee Blanche Bingley Hillyard played Wimbledon for the first time in [REDACTED]. If she played for the last time nearly 3 decades later, in all, estimate Blanche Bingley Hillyard's last appearance at Wimbledon.</p> <p>Answer:= _____</p>	
<p>Tennis greats and International Tennis Hall of Fame inductees Gabriela Sabatini was born in [REDACTED] while Alex Olmedo was born in [REDACTED]. How many more years older is Olmedo than Sabatini?</p> <p>Answer:= _____</p>	

International Tennis Hall of Fame inductee Randy Snow was born in 1959. Tennis legend Pete Sampras was inducted into the International Tennis Hall of Fame in [REDACTED]. What is the difference in between the year Snow was born and Sampras' induction year?

Answer:= _____

Maud Barger-Wallach won the U.S. National Singles Championship in 1908 at the age of [REDACTED] years old. This tennis great and International Tennis Hall of Fame inductee started playing tennis at the age of 30. What is the remainder of years between the start of Maud Barger-Wallach's tennis career and winning the U.S. National Singles Championship?

Answer:= _____

Pancho Segura, born and raised in Ecuador was known for his explosive two-handed forehand and was a [REDACTED] time NCAA singles champion. In sum, how many times did Pancho Segura win the NCAA singles champion while playing tennis as a member of the University of Miami squad?

Answer:= _____

Tennis sensation, Bill Tilden who reigned supreme over the world of tennis in the 1920's won a record of seven US Championships, played on a record [redacted] consecutive victorious American Davis Cup squads and held the Number 1 American ranking 10 times. In all, how many US Championships, American Davis Cups and Number 1 rankings did Bill Tilden hold?

Answer:= _____

In 1980, 2016 International Tennis Hall of Fame inductee Marat Safin was born. Safin captured his first major title at the US open in [redacted]. If you decreased the year that Marat won the US Open by the year he was born, how old was he when he won his first major title at the US Open?

Answer:= _____

Rosie Casals, inducted into the International Tennis Hall of Fame in 1996 was always near the top of her profession in singles play and was an outstanding doubles player who won [redacted] majors, winning 5 of them with long time partner Billie Jean King. What is the remainder of major title won by Casals without her long time playing partner Billie Jean King?

Answer:= _____

Born in 1940, Butch Buchholz was an accomplished player who reached Number 5 in the world as an amateur player in 1960. Buchholz turned pro in [REDACTED] and was a US Pro champion in the following season. If you decrease the year Buchholz turned Pro by the year he was born, how old was he when he began his professional play?

Answer:= _____

Name: _____

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Workspace

<p>Jennifer Capriati was born in 1976. She was inducted into the International Tennis Hall of Fame in 2012. If you decrease the year she was inducted by the year she was born, how old was Jennifer Capriati when she was inducted into the International Tennis Hall of Fame?</p> <p>Answer:= _____</p>	
<p>International Tennis Hall of Fame inductee Blanche Bingley Hillyard played Wimbledon for the first time in 1884. If she played for the last time nearly 3 decades later, in all, estimate Blanche Bingley Hillyard's last appearance at Wimbledon.</p> <p>Answer:= _____</p>	
<p>Tennis greats and International Tennis Hall of Fame inductees Gabriela Sabatini was born in 1970 while Alex Olmedo was born in 1936. How many more years older is Olmedo than Sabatini?</p> <p>Answer:= _____</p>	

International Tennis Hall of Fame inductee Randy Snow was born in 1959. Tennis legend Pete Sampras was inducted into the International Tennis Hall of Fame in **2007**. What is the difference in between the year Snow was born and Sampras' induction year?

Answer:= _____

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Answer:= _____

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Answer:= _____

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Answer:= _____

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Answer:= _____