

Vision - Potential

Vision Within Every Instructor – Potential Within Every Student

Newsletter of the HBCU College Algebra Reform Consortium*

Number 28, September 2000

Contents

- [1] Golf's Grand Slam
- [2] I Should've Bought Last Year
- [3] A Modeling Exercise
- [4] Mean, Median, and Mode Queries
- [5] Writing Assignment: "Average and Variability"
- [6] Notices

* Supported by the EXXON Education Foundation and the U.S. Military Academy.

Throughout his life, Tiger has been a winner at golf. He compiled one of the most impressive amateur records in golf history, winning six USGA National Championships plus the NCAA Title before turning professional on August 27, 1996. His winning ways have continued as he has come to dominate the sport.

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- [1] **Golf's Grand Slam**
written by
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Texas Southern University

Tiger Woods is the youngest player ever to conquer Golf's "Grand Slam," winning the Masters, U.S. Open, British Open, and the PGA tournaments by the time he was 24. Tiger began his golf career at an early age. Six months after being born on December 30, 1975 in Cypress, California he was reported to have imitated his father's swing as his father hit golf balls into a net. Two years later, on the Mike Douglas Show, he putted with Bob Hope, at three he shot 48 for nine holes, and at five was featured in Golf Digest.

In the game of golf, various mathematical skills or number concepts must be understood including the score keeping process; sizes and weights of golf clubs; angles players must strive to hit the ball given various wind velocities; distance; and criti-

cal thinking. Tiger Wood's "numbers" are as good as or better than any that have been amassed in the past fifty years. Some of them are:

1. At age 24, he is the youngest player to complete the Grand Slam, beating out Nicklaus who did it when he was 26.
2. His 21-under score is the lowest in relation to par in any major championship.
3. He has won 8 of the last 16 PGA Tour events he has played, which means he's winning 50 percent of the time.
4. He has won 6 times in 2000 and 14 times since the beginning of the 1999 season. The last player to win 14 times in two years was Nicklaus in '72 and '73.
5. He is only the third British Open champion to shoot four rounds in the 60s, joining Greg Norman in '93 at Royal St. George's and Nick Price in '94 at Turnberry.
6. He's the sixth player to win the U.S. and British Opens and the PGA in the same year and the first since Tom Watson in '82.
7. With his win of the 29th British Open on July 24, 2000, he holds three major championship trophies. The last person to hold three major trophies was Nicklaus in '72.
8. In August 2000, he won the PGA Championship and a week later won the NEC Invitational Championship setting a tour record of 21 under par.
9. He missed only one cut in 83 tournaments as a professional.
10. There are now only 24 players in history who have more Tour wins than Wood's 22. If he doesn't win anymore this year and averages four per year starting next year, he'll pass record-holder Sam Snead's 81 victories in 2016, when he's 40.

11. He has won more than \$7.6 million this year, a tour record.

Among his most remarkable achievements as a professional is the Tiger Woods Foundation, established in 1996. The Foundation conducts junior golf clinics and exhibitions in inner cities across the United States. Scholarships are also available through the Tiger Woods Foundation. The Foundation has funneled the money it has raised back into local communities and significantly impacted organizations which support family values and adult involvement in children's lives.

The Tiger Woods Foundation seeks to empower young people to reach their highest potential. Utilizing the platform that golf provides, the foundation supports programs that:

- Encourage youth to dream big dreams.
- Engage the community in helping youngsters pursue their goals, and
- Ensure young people's access to developmental opportunities in society.

The Foundation's values reflect those of Tiger Woods - tenacity, integrity, courage, self-esteem, and drive for excellence - qualities he strives to foster in young people everywhere.

[2] I Should've Bought Last Year

Last spring, Lew Sichelman of United Features wrote an article for the Houston Chronicle entitled "Average new-home cost surpasses \$200,000." He noted that the average new-home cost in 31 key markets across the country exceeded \$200,000 for the first time during the first quarter of 2000. Seven years ago, the average cost was under \$150,000. In order to help the reader comprehend changes in housing costs, comparison or percentage change figures are usually provided. The data for the following questions was taken from Lew Sichelman's article.

- a. If the growth rate for new-home costs over the past seven years is repeated over the next

seven years, what will be the average new-home cost in 2007?

- b. The 2000 average new-home cost in the Atlanta, GA region is \$203,700. This represents a 8.6 percent increase over the past year. What was the average in 1999?
- c. From 1999 to 2000, the new-home cost in the Houston-Galveston, TX region grew from \$139,800 to \$161,800. What percent increase is this?
- d. The San Francisco Bay area, including Oakland, San Jose, and Silicon Valley, is the most expensive of the 31 regions. The average price in that region increased 6.8 percent from the \$341,600 price in 1999. What is the average new-home cost in the San Francisco region in 2000?
- e. The average new-home cost over the 31 markets was \$189,200 in the first quarter of 1999, \$194,400 in the second quarter, \$197,700 in the third quarter, \$194,300 in the fourth quarter, and \$203,300 in the first quarter of 2000. Why do you think prices declined during the fourth quarter of 1999? Does the average increase show all of the fluctuations during the time period in question?
- f. Six regions registered a decline and twenty-five registered a rise in new-home cost. Rochester, NY registered a 21.5 increase (one of nine regions to show a double digit increase). Explain the following comment:
“For the most part, double-digit advances indicate greater-than-usual activity in the upper ends of (housing) markets, not rapidly rising prices - at least not in the short term. The declines in six market regions, which didn’t exceed 3.6 percent, signal greater sales than usual of lower-cost dwellings - not falling prices.”

What do the coordinates of a point in the Cartesian plane represent? Consider the set of points in the Cartesian plane that have the property that their distance from the x -axis is twice their distance from the y -axis. For example, points (2,4) and (5,10) are in this set. Develop both an analytical model (an equation) and a graphical model of this set.

[4] **Mean, Median, and Mode Queries**
Della Bell

Texas Southern University

1. A class votes that green is its favorite color. Is this a mean, median, or mode?
2. Two math classes take a test. The mean is 70 in class A and 80 in class B. What circumstance would guarantee that the mean for the combined classes is 75?
3. One day in the New York Times, NBC and CBS advertised their success in the Nielsen ratings. Both said that they have “the biggest Average Night-time audience.” How is this possible?
4. The values of 5 houses in an area are \$100,000, \$120,000, \$130,000, \$120,000, and \$500,000.
 - a. The mean price of the houses is?
 - b. The median price of the houses is?
 - c. Which price (mean, median) is more representative of the group? Why?
5. For each of the following make up a set of 4 or more measurements, not all of which are equal.
 - a. The mean and median are equal.
 - b. The mean and the mode are equal.
 - c. The mean, median, and mode are equal.
 - d. The mean and median have values of 8.

[3] **A Modeling Exercise**

- e. The mean and mode have values of 6.
 - f. The mean and the average are different.
6. Which of the 3 measures (mean, median, mode) should be used for the following data?
- a. The average salary of four salesman and the owner of a small store.
 - b. The average height of all students in Wavertville High School.
 - c. The average dress size sold at Joan's apparel shop.
7. If 99 people have a mean income of \$18,000, by how much does the mean income increase when an employer is added who has an income of \$150,000?
8. Make up a set of data for which neither the mean nor the median is representative.
9. Sam bought desserts for 10 people, including himself. Five of the desserts cost \$1.00 a piece, three desserts cost \$2.00 a piece, and two desserts cost \$3.00 a piece. He told his friends, "the desserts cost \$1, \$2, and \$3. So the average cost is \$2. If each of you gives me \$2, we'll be even."
- a. What is the actual average (mean) price of the desserts?
 - b. How much extra money will Sam have after charging everyone, including himself, \$2?

set is dependent on the variability of the set. (The variability of a numerical set is measured by the difference between the largest value and smallest value of the set.) In some circumstances in order to decrease the variability, both the high and low values are removed from the set. For example, in competitive figure skating, each contestant is scored by a panel judges. A highest and a lowest score is deleted and the sum of the remaining scores is the contestant's score.

1. Write (approximately one-half page) an explanation of the statement:

The less the variability in a data set, the more representative of the set is the average.

Give two examples to illustrate your explanation.
2. Write (approximately one-half page) on the dangers of omitting one or more values from a data set. Include two examples of what the data set {20, 35, 22, 30, 32, 60} could represent. (For example, the number of gallons (in thousands) of water flowing over a dam per hour). In one of your examples it should make sense to delete the value 60, but not in the other example.

[6]

Notices

1. The Fifth Annual Retreat of the HBCU College Algebra Reform Consortium will be held September 28-30, 2000 at Wiley College, Marshall, Texas.
2. The Deadline for contributions to the October Newsletter is Monday, October 2, 2000.
3. To subscribe to this Newsletter or to submit articles write to Dr. Della Bell, Chair, Dept. of Mathematics, Texas Southern University, 3100 Cleburne St., Houston, TX 77004.

[5] Writing Assignment: "Average and Variability"

The average (mean) of a data set is a way of representing the set by a single measure. For example, two sections in the same course are sometimes compared by comparing the averages on a common exam. How "good" the average represents a data