

Geometry Homework #14

- 1) A bag contains one brown, one green, one red, one blue, one yellow, one orange, one purple, and one grey marble. If you randomly select six marbles at a time, how many different combinations of marble colors are possible? If you were to line up those six marbles each time you selected them and look at the pattern of colors, how many different possible patterns would there be?
- 2) Find 11^{10} without actually multiplying anything.
- 3) Construct Pascal's triangle to determine the numbers, in order, of the 8th row of the triangle.
- 4) A swim team, consisting of 9 swimmers, gets invited to participate in a regional swim meet. The rules state that you can only bring 5 members to the meet. If the regional swimmers are chosen at random from all of the swimmers on the team, how many different teams can possibly be created? If the first swimmer chosen has to compete in the breaststroke race, the second person selected has to compete in the backstroke race, the third person has to complete in the sidestroke race, the fourth person has to compete in the butterfly race, and the fifth person chosen must compete in the freestyle race, how many unique teams are possible?
- 5) Construct Pascal's triangle and use it to expand $(2x - 3y)^5$
- 6) Find the mean, median, and mode of Joshua's lunch bills for the week if his bills were \$31, \$45, \$19, \$58, \$45, \$39, and \$29.
- 7) A survey asked nine students how many pets they own. If the answers were 4, 2, 7, 0, 3, 3, 2, 5, and 1, which amounts of pets, if any, are beyond one standard deviation from the mean?
- 8) Andrew's soccer team plays twelve games this season. In an effort to determine Andrew's activity level, the coach keeps track of how many times Andrew kicks the ball during each game. The results were as follows:

| <u>Game #</u> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|----------------------|----|----|----|---|----|----|----|----|----|----|----|----|
| <u>Amt. of kicks</u> | 32 | 41 | 23 | 0 | 39 | 54 | 41 | 48 | 33 | 37 | 24 | 60 |

It is your job to analyze these data for the coach. Find the mean, median, mode, range, variance, and standard deviation for the data.

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- 9) If the costs of Abigail's dinner bills for the week were \$56, \$47, \$52, \$23, \$68, \$34, and \$56, find the mean, median, and mode.
- 10) On the first test in an algebra class, the eight students received grades of 88, 94, 76, 86, 100, 92, 65, and 79. Which grades, if any, are beyond one standard deviation from the mean?
- 11) Jacob loves bacon, but his doctor is concerned that he might be eating too many strips of bacon each week. The doctor asks Jacob to keep track of the number of strips he eats each week for the next eight weeks. Jacob's data looks like this:

| | | | | | | | | |
|---------------------------|----------|----------|----------|----------|----------|----------|----------|----------|
| <i>Week #</i> | <i>1</i> | <i>2</i> | <i>3</i> | <i>4</i> | <i>5</i> | <i>6</i> | <i>7</i> | <i>8</i> |
| <i>Bacon strips eaten</i> | 21 | 29 | 25 | 19 | 31 | 22 | 38 | 31 |

In order to properly advise Jacob, the doctor needs an analysis of these data, and he asks you to do the calculations. Find the mean, median, mode, range, variance, and standard deviation for the data.

- 12) If the costs of Chloe's breakfast bills for the past nine days were \$13, \$9, \$17, \$15, \$17, \$11, \$15, \$17, and \$21, find the mean, median, and mode.
- 13) On the first nine holes of a golf course, Derek shoots scores of 4, 3, 7, 4, 5, 3, 4, 4, and 2. Which scores, if any, are beyond one standard deviation from the mean?
- 14) Dr. Phillips is worried that Derrick is not spending enough time on his homework each week, so he asks Derrick to keep track of the number of hours he spends on his homework per week for ten weeks. Derrick's data looks like this:

| | | | | | | | | | | |
|--------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| <i>Week #</i> | <i>1</i> | <i>2</i> | <i>3</i> | <i>4</i> | <i>5</i> | <i>6</i> | <i>7</i> | <i>8</i> | <i>9</i> | <i>10</i> |
| <i>Hours spent on homework</i> | 3 | 5 | 3 | 7 | 6 | 4 | 8 | 5 | 4 | 5 |

As part of his math education, Dr. Phillips asks Derrick to analyze these data. Assuming he does everything correctly, what were his answers for the mean, median, mode, range, variance, and standard deviation of the data?

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- 15) If, for ten weeks, the number of problems Jacob did on his math homework each week was 19, 15, 20, 19, 16, 20, 19, 17, 17, and 18, respectively, find the mean, median, and mode.
- 16) The high temperatures for a week in July in Hackettstown were 88, 88, 87, 89, 89, 87, and 88. Which temperatures, if any, are beyond one standard deviation from the mean?
- 17) Chloe likes to wear bows in her hair. She keeps track of the number of days per month that she decides to wear bows. The data looks like this:

| | | | | | | | | | |
|---------------------------|-------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <u>Month</u> | <i>Apr.</i> | <i>May</i> | <i>Jun.</i> | <i>Jul.</i> | <i>Aug.</i> | <i>Sep.</i> | <i>Oct.</i> | <i>Nov.</i> | <i>Dec.</i> |
| <u>Days wearing a bow</u> | 26 | 28 | 17 | 29 | 21 | 30 | 28 | 22 | 15 |

What are the mean, median, mode, range, variance, and standard deviation for Chloe's data?

- 18) If Derek's total scores for each of his last eight golf tournaments were 72, 81, 69, 72, 76, 66, 72, and 84, find the mean, median, and mode.
- 19) You weigh yourself every week for eight straight weeks and record the weights, in pounds, to be 148, 148, 150, 150, 150, 148, 148, and 150. Which weights, if any, are beyond one standard deviation from the mean?
- 20) Abigail goes hiking every week. She keeps track of the miles she hikes each week and records the data as follows:

| | | | | | | | | |
|--------------------|----------|----------|----------|----------|----------|----------|----------|----------|
| <u>Week #</u> | <i>1</i> | <i>2</i> | <i>3</i> | <i>4</i> | <i>5</i> | <i>6</i> | <i>7</i> | <i>8</i> |
| <u>Miles hiked</u> | 4 | 6 | 3 | 1 | 2 | 6 | 6 | 4 |

Find the mean, median, mode, range, variance, and standard deviation for these data.

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