

Name _____

Date _____

Special Problem 2

Due Date: _____

Special Problem #2 is a set of three worksheets. Please attach all work for the problems on separate paper. Enjoy!!

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Worksheet 21: AREAS UNDER THE NORMAL CURVE

RIDDLE: What causes most auto accidents?

Directions: To find the answer to the riddle, write the answers to the problems on the lines. The word in the solution section beside the answer to the first problem is the first word in the answer to the riddle, the word beside the answer to the second problem is the second word, and so on. Each question refers to the percent of cases under the normal curve.

- _____ 1. Percentage above a z-score of 1.00?
- _____ 2. Percentage below a z-score of 2.00?
- _____ 3. Percentage below a z-score of 0.50?
- _____ 4. Percentage below a z-score of -0.60?
- _____ 5. Percentage below a z-score of 0.00?
- _____ 6. Percentage above a z-score of 1.96?
- _____ 7. Percentage below a z-score of -2.58?
- _____ 8. Percentage above a z-score of -1.75?
- _____ 9. If a person has a raw score of 53 and if the raw score $M = 49.00$ and $S = 4.00$, what percentage is below the person's z-score?
- _____ 10. If a person has a raw score of 89 and if the raw score $M = 99.00$ and $S = 5.00$, what percentage is below the person's z-score?
- _____ 11. If a person has a raw score of 450 and if the raw score $M = 500.00$ and $S = 100.00$, what percentage is below the person's z-score?

SOLUTION SECTION:

15.87% (PEOPLE)	100.00% (WALKING)	97.72% (WHO)	27.43% (IN)
97.50% (SEE)	4.90% (ROADS)	69.15% (DRIVE)	0.49% (THEIR)
50.00% (FORWARD)	45.99% (ROUGH)	2.50% (WHILE)	2.28% (IN)
84.13% (ARE)	30.85% (REVERSE)	95.99% (MINDS)	34.13% (HER)

Write the answer to the riddle here, putting one word on each line:

Worksheet 17: STANDARD SCORES

RIDDLE: What's the problem with joining the paratroopers?

Directions: To find the answer to the riddle, write the answers to the problems on the lines. The word in the solution section beside the answer to the first problem is the first word in the answer to the riddle, the word beside the answer to the second problem is the second word, and so on. Round your answers to one decimal place.

RAW SCORE STATISTICS:

Group A: $M = 20.00, S = 4.00$ Group C: $M = 50.00, S = 6.00$
 Group B: $M = 33.33, S = 4.41$ Group D: $M = 62.85, S = 6.52$

- _____ 1. What is the z-score of a person with a raw score of 20 in Group A?
- _____ 2. What is the z-score of a person with a raw score of 24 in Group A?
- _____ 3. What is the z-score of a person with a raw score of 22 in Group B?
- _____ 4. What is the z-score of a person with a raw score of 53 in Group C?
- _____ 5. What is the z-score of a person with a raw score of 70 in Group D?

RAW SCORE STATISTICS (One group took both tests.):

Reading Test: $M = 30.00, S = 3.00$
 Math Test: $M = 40.00, S = 4.00$

- _____ 6. Jan has raw scores of 33 on reading and 34 on math. She is higher on reading than math by how many standard score points?
- _____ 7. John has raw scores of 30 on reading and 44 on math. He is higher on math than reading by how many standard score points?
- _____ 8. Kelly has raw scores of 36 on reading and 36 on math. She is higher on reading than math by how many standard score points?
- _____ 9. Rich has raw scores of 25 on reading and 42 on math. He is higher on math than reading by how many standard score points?

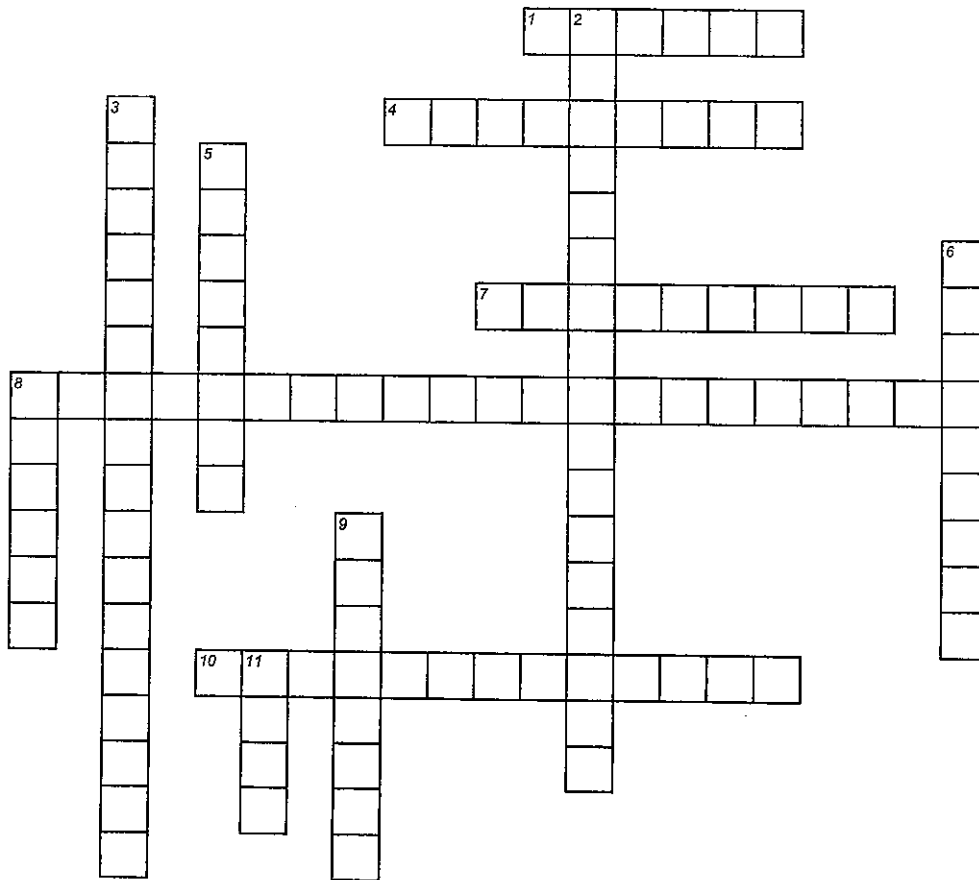
SOLUTION SECTION:

2.0 (HAVE)	3.3 (FLY)	-0.5 (PLANE)	0.0 (YOU)	1.7 (FORCE)	0.5 (DO)
1.1 (EVERYTHING)	-1.1 (PARACHUTE)	-2.0 (JUMP)	-3.3 (TO)	2.2 (TIME)	
2.5 (RIGHT)	1.0 (THE)	-0.5 (DEFENSE)	3.0 (FIRST)	4.0 (GLIDE)	

Write the answer to the riddle here, putting one word on each line:

Standard Deviation & the Normal Model

Advanced Placement Statistics



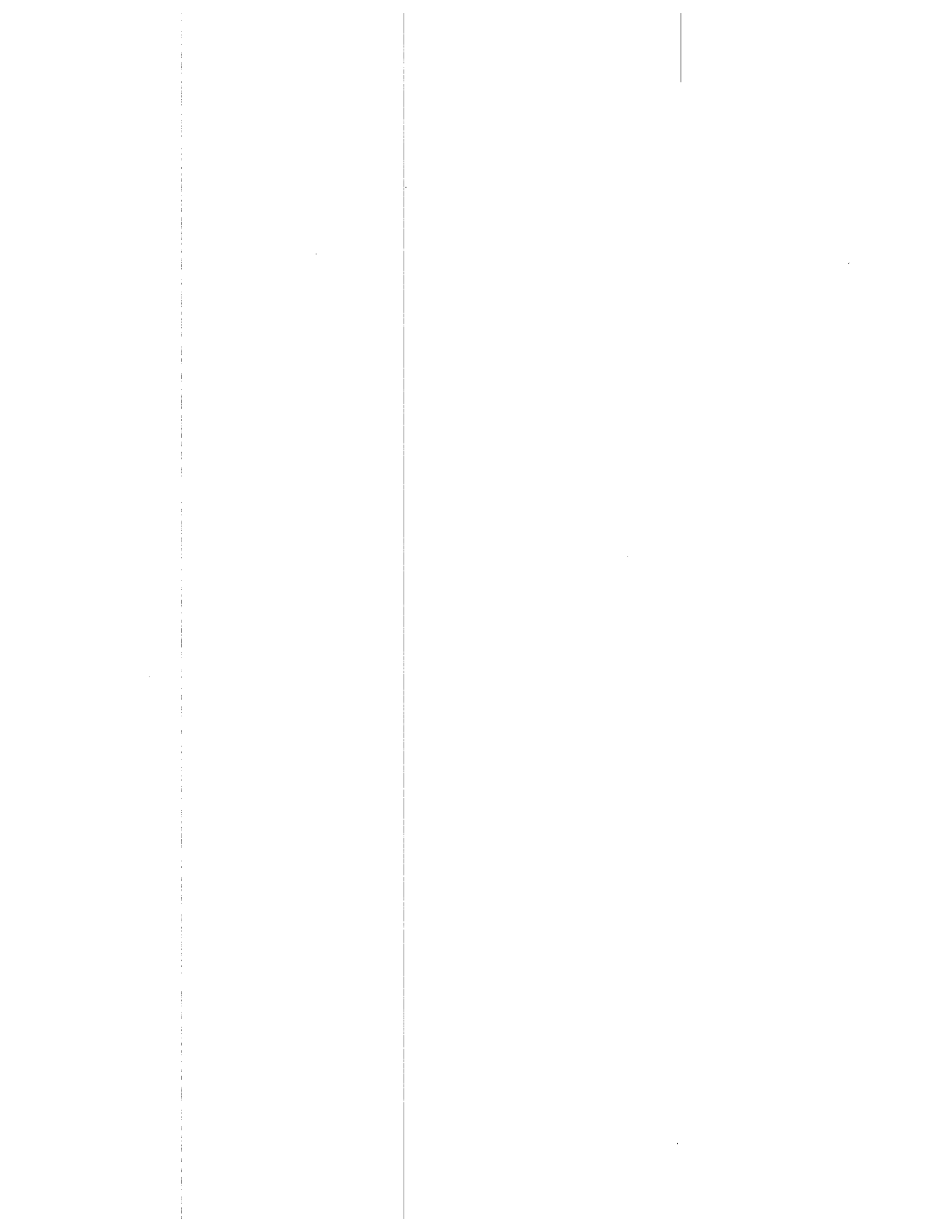
Stats: Modeling the World, Chapter 6

ACROSS

- 1 tells how many standard deviations a value is from the mean
- 4 the process of multiplying each value by a constant that multiplies both the measures of position and measures of spread by that constant
- 7 numerical attribute of a model
- 8 display to help assess whether a distribution of data is approximately Normal
- 10 in a Normal Model, about 68% of the values fall within 1 standard deviation of the mean, about 95% within 2 standard deviations, and about 99.7% within 3 standard deviations

DOWN

- 2 the value found by subtracting the mean and dividing by the standard deviation
- 3 the square root of the variance
- 5 type of Normal model with mean 0 and standard deviation 1
- 6 numerical attribute of a set of data
- 8 model used for certain unimodal, symmetric distributions
- 9 the sum of the squared deviations from the mean, divided by the count minus one
- 11 center of the Normal model



Worksheet 17: STANDARD SCORES

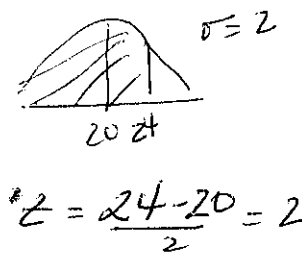
RIDDLE: What's the problem with joining the paratroopers?

Directions: To find the answer to the riddle, write the answers to the problems on the lines. The word in the solution section beside the answer to the first problem is the first word in the answer to the riddle, the word beside the answer to the second problem is the second word, and so on. Round your answers to one decimal place.

RAW SCORE STATISTICS:

Group A: $M = 20.00, S = 2.00$ Group C: $M = 50.00, S = 6.00$
 Group B: $M = 33.33, S = 3.41$ Group D: $M = 62.85, S = 6.52$

- 0 1. What is the z-score of a person with a raw score of 20 in Group A? *you*
- 2 2. What is the z-score of a person with a raw score of 24 in Group A? *have*
- 3.323 3. What is the z-score of a person with a raw score of 22 in Group B? *fly to*
- .5 4. What is the z-score of a person with a raw score of 53 in Group C? *do*
- 1.10 5. What is the z-score of a person with a raw score of 70 in Group D? *everything*



RAW SCORE STATISTICS (One group took both tests.):

Reading Test: $M = 30.00, S = 3.00$
 Math Test: $M = 40.00, S = 4.00$

$$\frac{53 - 50}{6} = \frac{1}{2}$$

$$\frac{22 - 33.33}{3.41}$$

$$\frac{70 - 62.85}{6.52}$$

- 2.5 6. Jan has raw scores of 33 on reading and 34 on math. She is higher on reading than math by how many standard score points? $|1 - 1.5| = 2.5$
- 1 7. John has raw scores of 30 on reading and 44 on math. He is higher on math than reading by how many standard score points? $|0 - 1| = 1$
- 3 8. Kelly has raw scores of 36 on reading and 36 on math. She is higher on reading than math by how many standard score points? $|2 - -1| = 3$
- 2.2 9. Rich has raw scores of 25 on reading and 42 on math. He is higher on math than reading by how many standard score points? $|-1.7 - .5| = 2.2$

SOLUTION SECTION:

2.0 (HAVE)	3.3 (FLY)	-0.5 (PLANE)	0.0 (YOU)	1.7 (FORCE)	0.5 (DO)
1.1 (EVERYTHING)	-1.1 (PARACHUTE)	-2.0 (JUMP)	-3.3 (TO)	2.2 (TIME)	
2.5 (RIGHT)	1.0 (THE)	-1.5 (DEFENSE)	3.0 (FIRST)	4.0 (GLIDE)	

Write the answer to the riddle here, putting one word on each line:

You have to do everything
right the first time

