

Appendix A: Session 1 Puzzles

Goal: Escape from the grid by finding the correct path to the outside ring

Rules: From the **START** position, you will make 8 moves

You can move within a ring or move closer to the outside

You can move to adjacent squares, but not diagonally

You cannot re-enter a ring to move back toward the center

1	2	3	4	5	6	7	
	I	O	I	N	R	N	R
24	R	N	R	O	I	O	I
23	I	O	I	N	R	N	R
22	R	N	R	START	O	I	O
21	O	I	O	I	N	R	N
20	N	R	N	R	O	I	O
19	O	I	O	I	N	R	N
	18	17	16	15	14		13

Where did you exit the grid? Square # _____

N = Nominal variable

O = Ordinal variable

I = Interval variable

R = Ratio variable

Which level of measurement?

1 st move	Eye color (brown, blue, green, etc.)	
2 nd move	Annual salary (in \$)	
3 rd move	Olympic medal (gold, silver, bronze)	
4 th move	Academic major (psychology, history, chemistry, etc.)	
5 th move	IQ score (120, 90, 140, etc.)	
6 th move	Distance travelled (in meters)	
7 th move	Level of education (high school, bachelor's, master's, etc.)	
8 th move	Favorite music genre (pop, country, rock, etc.)	

Puzzle A

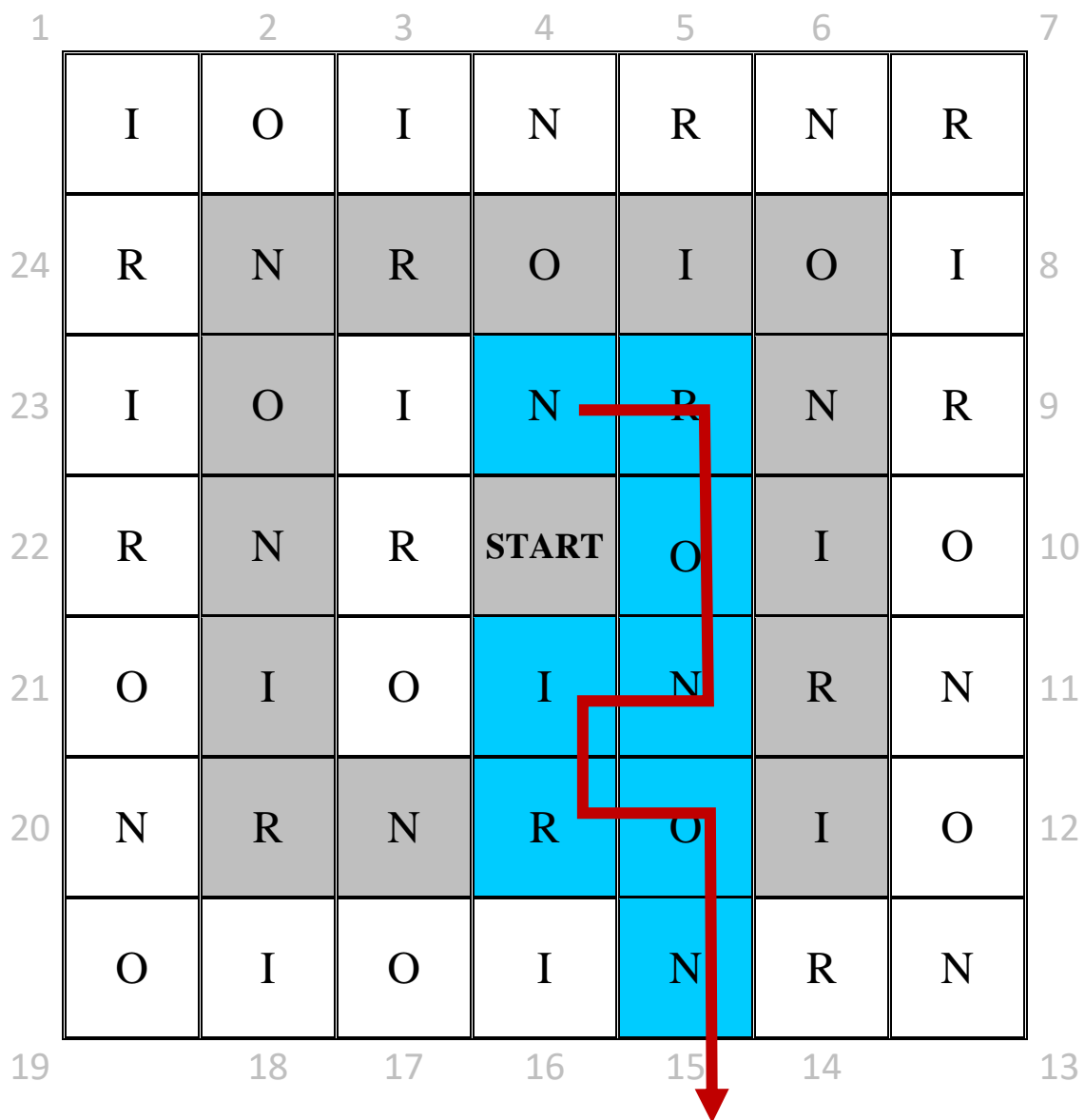
Goal: Escape from the grid by finding the correct path to the outside ring

Rules: From the **START** position, you will make 8 moves

You can move within a ring or move closer to the outside

You can move to adjacent squares, but not diagonally

You cannot re-enter a ring to move back toward the center



Where did you exit the grid? Square # **15**

N = Nominal variable

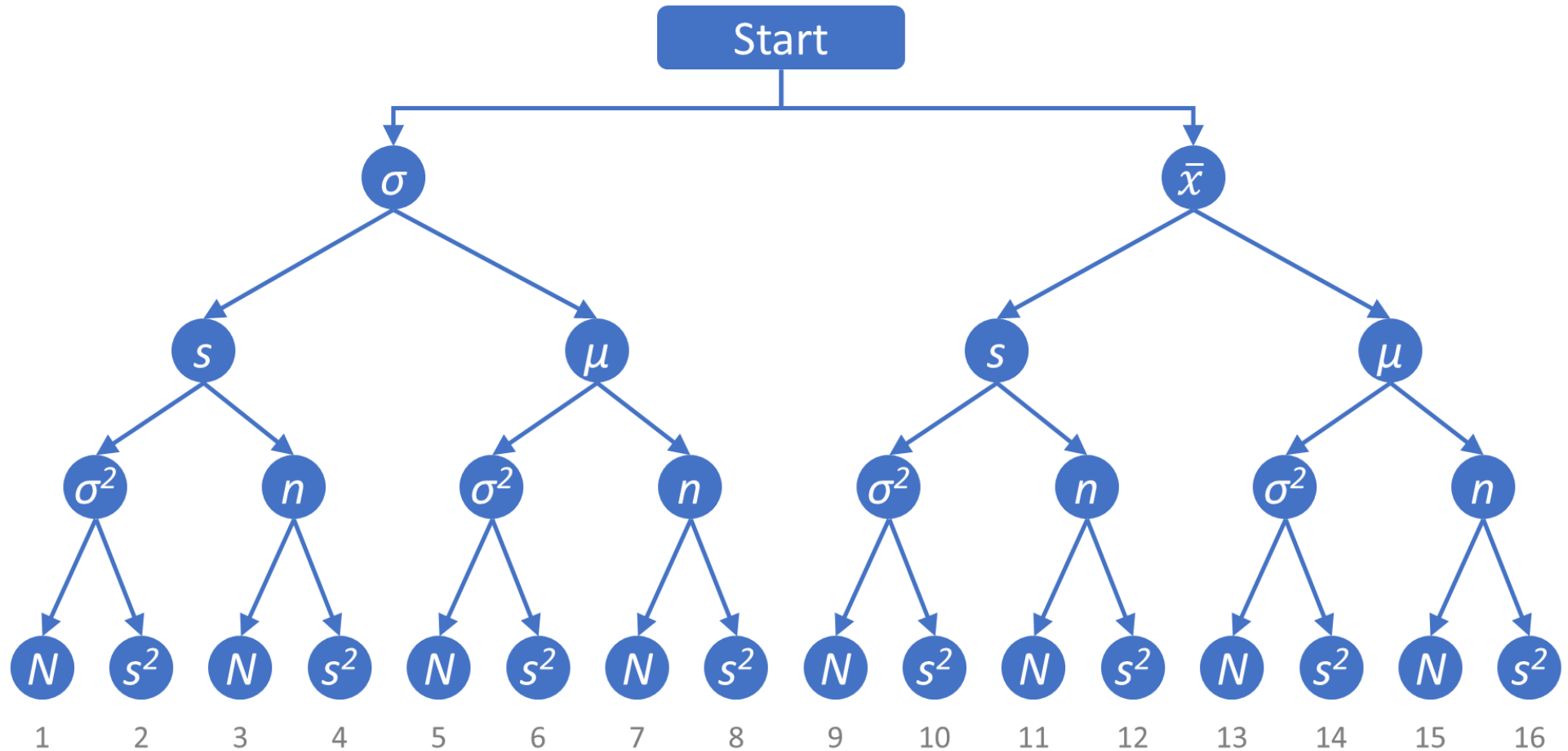
O = Ordinal variable

I = Interval variable

R = Ratio variable

Which level of measurement?

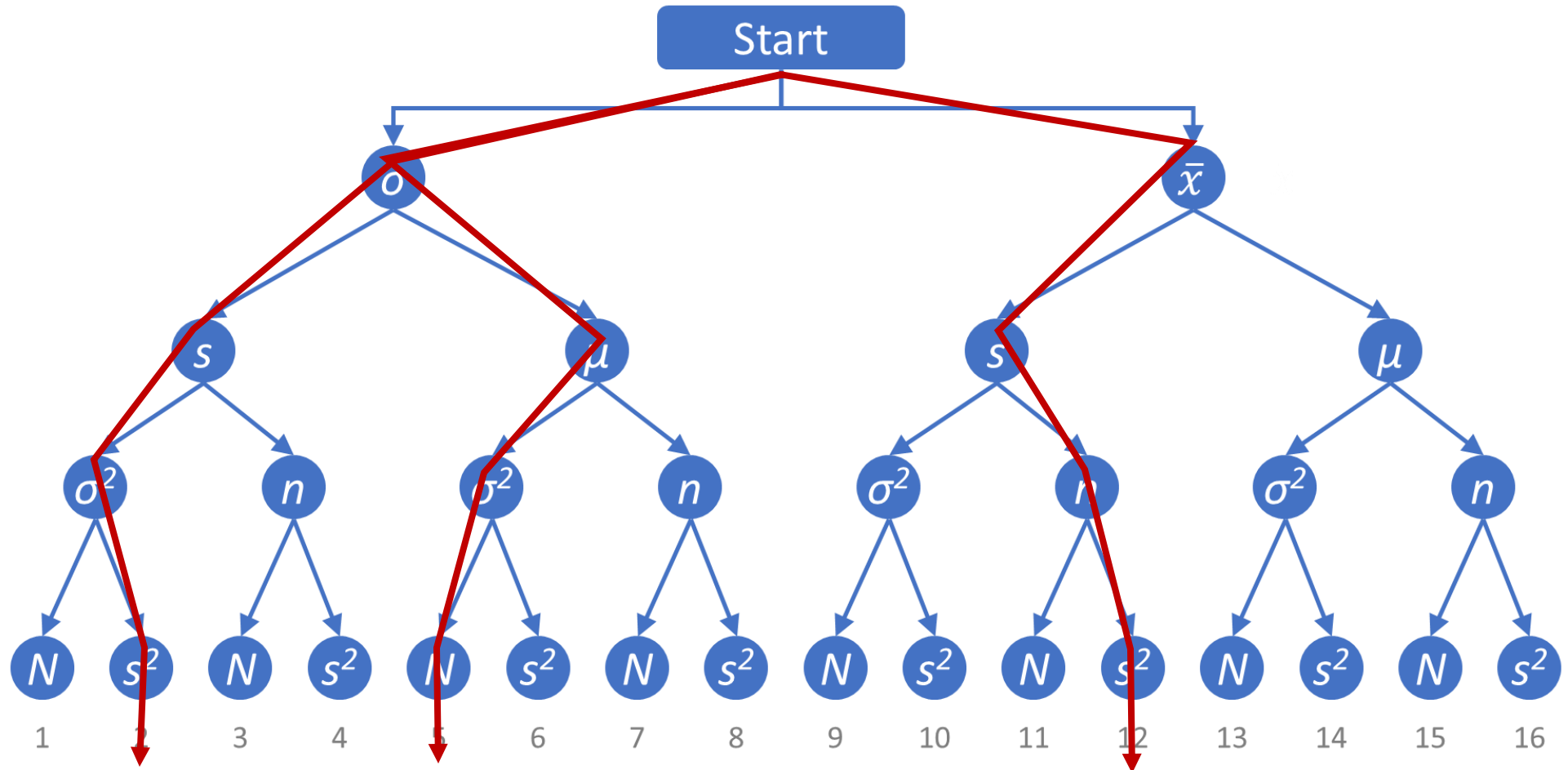
1 st move	Eye color (brown, blue, green, etc.)	N
2 nd move	Annual salary (in \$)	R
3 rd move	Olympic medal (gold, silver, bronze)	O
4 th move	Academic major (psychology, history, chemistry, etc.)	N
5 th move	IQ score (120, 90, 140, etc.)	I
6 th move	Distance travelled (in meters)	R
7 th move	Level of education (high school, bachelor's, master's, etc.)	O
8 th move	Favorite music genre (pop, country, rock, etc.)	N



Following the symbols that represent **sample** statistics leads to path #: _____

Following the symbols that represent measures of **variability** leads to path #: _____

Following the symbols that represent **population** parameters leads to path #: _____



Following the symbols that represent **sample** statistics leads to path #: 12

Following the symbols that represent measures of **variability** leads to path #: 2

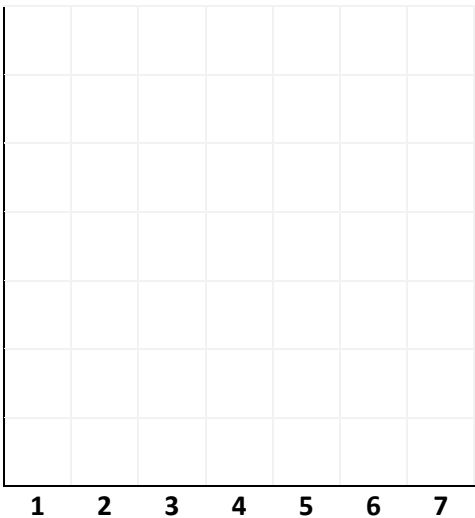
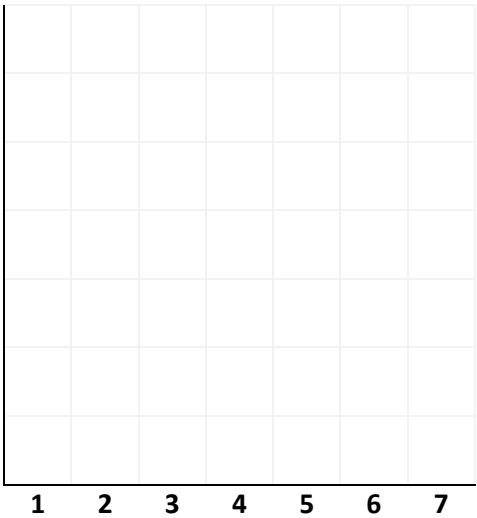
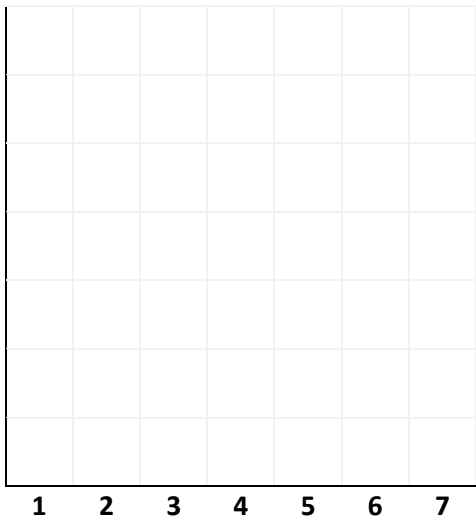
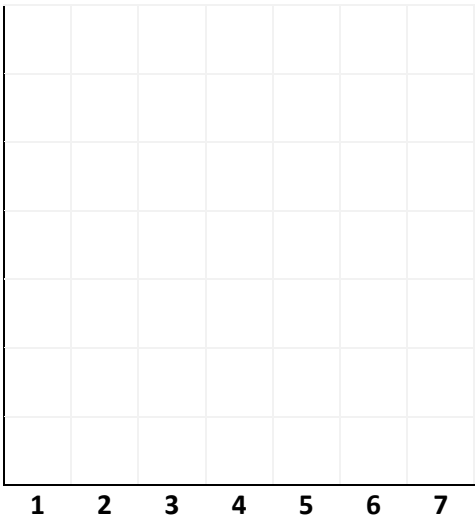
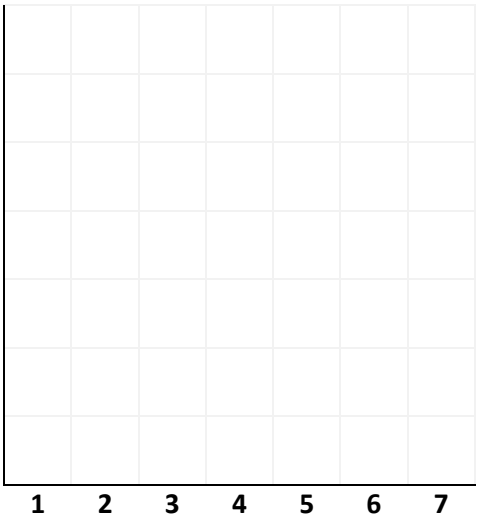
Following the symbols that represent **population** parameters leads to path #: 5

Match each set of sample values to its frequency distribution

(You can use the blank charts to help visualize the samples)

Sample	Sample values ($n = 16$)	Which Distribution?
A	6, 4, 1, 5, 5, 6, 7, 7, 3, 4, 6, 5, 5, 2, 3, 4	Positively skewed
B	6, 3, 7, 5, 2, 2, 5, 6, 3, 4, 4, 3, 5, 4, 4, 1	Negatively skewed
C	2, 5, 4, 4, 3, 6, 3, 6, 3, 1, 1, 2, 2, 1, 5, 1	Uniform
D	2, 4, 7, 4, 7, 1, 6, 1, 2, 4, 1, 7, 5, 1, 4, 7	Bimodal
E	6, 4, 5, 2, 6, 6, 1, 2, 7, 2, 3, 5, 2, 4, 1, 6	Trimodal
F	2, 4, 5, 4, 4, 2, 3, 5, 3, 2, 3, 2, 4, 5, 3, 5	Unimodal normal

Puzzle D

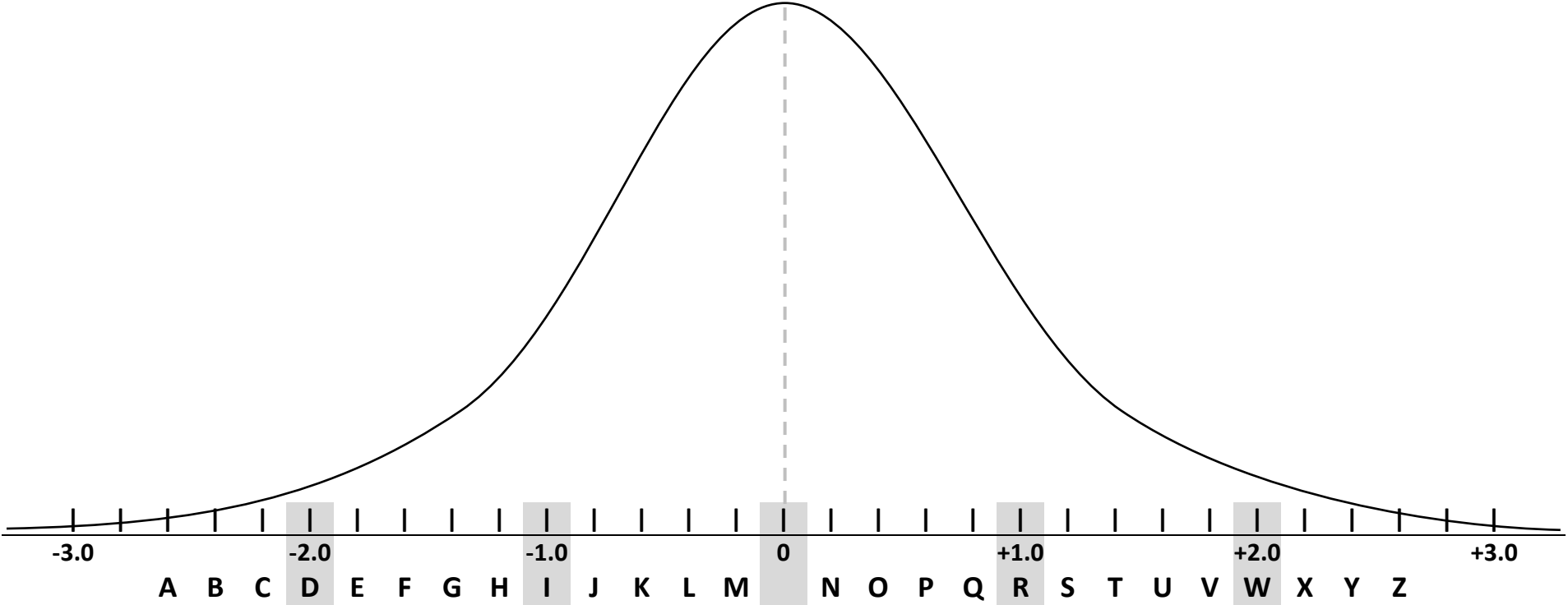


Match each set of sample values to its frequency distribution

(You can use the blank charts to help visualize the samples)

Sample	Sample values ($n = 16$)	----->		Which Distribution?
A	6, 4, 1, 5, 5, 6, 7, 7, 3, 4, 6, 5, 5, 2, 3, 4			Positively skewed
B	6, 3, 7, 5, 2, 2, 5, 6, 3, 4, 4, 3, 5, 4, 4, 1			Negatively skewed
C	2, 5, 4, 4, 3, 6, 3, 6, 3, 1, 1, 2, 2, 1, 5, 1			Uniform
D	2, 4, 7, 4, 7, 1, 6, 1, 2, 4, 1, 7, 5, 1, 4, 7			Bimodal
E	6, 4, 5, 2, 6, 6, 1, 2, 7, 2, 3, 5, 2, 4, 1, 6			Trimodal
F	2, 4, 5, 4, 4, 2, 3, 5, 3, 2, 3, 2, 4, 5, 3, 5			Unimodal normal

Puzzle E

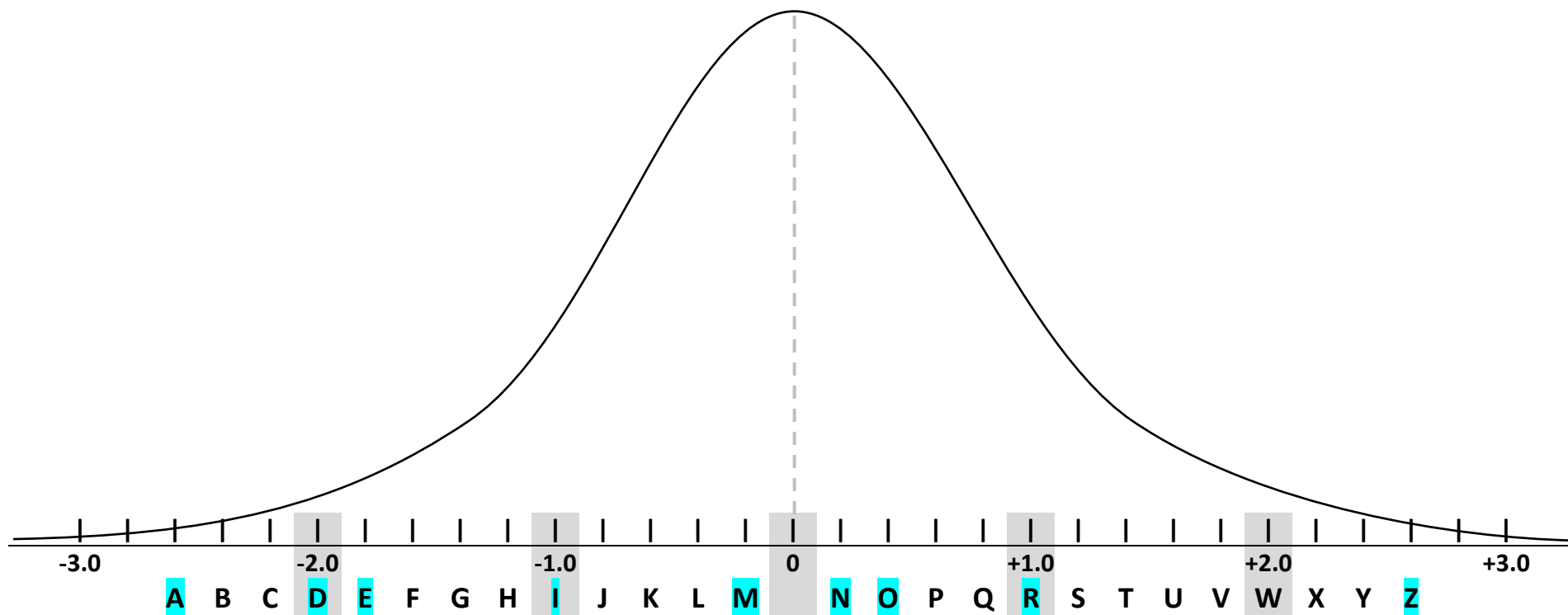


Code word: _____

Puzzle E

#	Raw Score	Z-Score
1	The average number of steps people walk per day is 5,000 (SD = 1,000 steps). Amy walks 6,000 steps.	
2	The mean height of American men is 5'9" (69 inches), with a standard deviation of 3 inches. Bob is 61.2 inches tall.	
3	A company manufactures products that weigh 350 grams (SD = 5 grams). A customer receives a product that weighs 351 grams.	
4	An average bag of candy contains 60 pieces (SD = 3 pieces). Derek buys a bag of candy that contains 54 pieces.	
5	A new car model has an average fuel economy of 43 miles per gallon and a standard deviation of 1.5 MPG. A test-driven vehicle gets 43.6 MPG.	
6	The average salary at a company is \$45,600 (SD = \$6,700). A specific employee makes \$44,260.	
7	The average house in a neighborhood has 3.5 bedrooms (SD = 1.5 bedrooms). One family's house has 2 bedrooms.	
8	A class takes an exam with an average score of 78% (SD = 7%). Maria's exam score is 96.2%	
9	The average cup of coffee contains 95 mg of caffeine, with a standard deviation of 15 mg. Dan's cup contains 68 mg of caffeine.	

Puzzle E



Code word: R A N D O M I Z E

Puzzle E

#	Raw Score	Z-Score
1	The average number of steps people walk per day is 5,000 (SD = 1,000 steps). Amy walks 6,000 steps.	1.0 = R
2	The mean height of American men is 5'9" (69 inches), with a standard deviation of 3 inches. Bob is 61.2 inches tall.	-2.6 = A
3	A company manufactures products that weigh 350 grams (SD = 5 grams). A customer receives a product that weighs 351 grams.	0.2 = N
4	An average bag of candy contains 60 pieces (SD = 3 pieces). Derek buys a bag of candy that contains 54 pieces.	-2.0 = D
5	A new car model has an average fuel economy of 43 miles per gallon and a standard deviation of 1.5 MPG. A test-driven vehicle gets 43.6 MPG.	0.4 = O
6	The average salary at a company is \$45,600 (SD = \$6,700). A specific employee makes \$44,260.	-0.2 = M
7	The average house in a neighborhood has 3.5 bedrooms (SD = 1.5 bedrooms). One family's house has 2 bedrooms.	-1.0 = I
8	A class takes an exam with an average score of 78% (SD = 7%). Maria's exam score is 96.2%	2.6 = Z
9	The average cup of coffee contains 95 mg of caffeine, with a standard deviation of 15 mg. Dan's cup contains 68 mg of caffeine.	-1.8 = E

Puzzle F

Type	Hyp. 1	Hyp. 2	Hyp. 3	Hyp. 4	Hyp. 5	Hyp. 6	Hyp. 7	Hyp. 8
Non-directional Null	H	A	G	E	L	F	O	D
Directional Null	P	I	W	O	E	R	A	N
Non-directional Alternative	T	E	L	U	R	D	U	R
Directional Alternative	B	O	E	A	P	L	E	L

Code Word:

Puzzle F

Type	Hyp. 1	Hyp. 2	Hyp. 3	Hyp. 4	Hyp. 5	Hyp. 6	Hyp. 7	Hyp. 8
Non-directional Null	H	A	G	E	L	F	O	D
Directional Null	P	I	W	O	E	R	A	N
Non-directional Alternative	T	E	L	U	R	D	U	R
Directional Alternative	B	O	E	A	P	L	E	L

Code Word: P O W E R F U L