Lesson 6.1: Day 1: How many children are in your family?
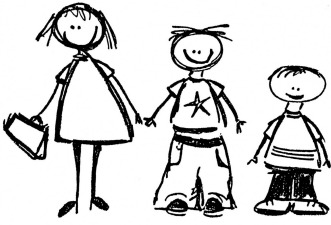
Count up the number of children in your family (including yourself). Be sure to include all your stepbrothers/stepsisters and half-brothers/half-sisters.

Let X = the number of children. Suppose we choose someone from the class at random.

X	1	2	3	4	5	6+
Probability						

1. Is this a valid probability model? Explain.

2. Is 5.7167 a possible value for X? Explain.

3. Make a histogram to display information with X on the horizontal axis, and describe its shape.

4. Describe in words what $P(X \geq 3)$ and then find $P(X \geq 3)$.

5. Describe in words what $P(X > 3)$ and then find $P(X > 3)$.

6. Find the average of the X values.

7. Does this value tell us the average number of children in the families of students in this class? If yes, explain. If no, why not?

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Lesson 6.1 Day 1– Discrete Random Variables

Important ideas:

Check Your Understanding

Indiana University Bloomington posts the grade distributions for its courses online. Suppose we choose a student at random from a recent semester of this university's Business Statistics course. The student's grade on a 4-point scale (with A = 4) is a random variable X with this probability distribution:

Value	0	1	2	3	4
Probability	0.011	0.032	???	0.362	0.457

1. Write the event "the student got a C" using probability notation. Then find this probability.

2. Explain in words what $P(X \geq 3)$ means. What is this probability?

3. Make a histogram of the probability distribution. Describe its shape.

4. Calculate and interpret the expected value of X.

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