

Exercises 7.1 - 7.7

DISCRETE RANDOM VARIABLES :
TYPICALLY ARE COUNTING #'S.

CONTINUOUS RANDOM VARIABLES :
TYPICALLY ARE BASED ON MEASUREMENTS.

- 7.1 a discrete # tires
 b continuous body temp
 c discrete pages in book
 d discrete # Card draws
 e continuous life of a light bulb

- 7.2 a continuous - mpg
 b continuous - AMOUNT OF RAINFALL
 c continuous - distance throw a baseball
 d discrete - # TEST QUESTIONS
 e continuous - TENNIS STRING TENSION (lbs/sq in)
 f continuous - AMOUNT OF WATER
 g discrete - # TRAFFIC TICKETS

**Random variable-use UPPER case variables

**Use lower case for possible value for the random variable

- 7.3 { Random Variable: $y = \# \text{ Cars observed.}$
 • The possible y values are the set of all positive integers.
 • Some possible outcomes are LS, RRS, S, LRRRLLRLLS, and LLLLS, with corresponding y values equal to 2, 3, 1, 10, and 5, respectively.

NOTICE GOING STRAIGHT(S) ENDS THE EXPERIMENT + IS INCLUDED IN # of cars observed

7.4 Possible values of x (in feet) are the real numbers in the interval $0 < x < \sqrt{2}$. The variable x is a continuous variable.

- 7.5 { $y = \text{depth of lake at randomly chosen points.}$
 Possible values of y (in feet) are the real numbers in the interval $0 \leq y \leq 100$. The variable y is a continuous variable.

7.6 Possible value of y are the collection of positive even integers 2, 4, 6, 8, etc. The variable y is a discrete variable.

- 7.7 a Possible values for x are 3, 4, 5, 6, 7. $\left[\begin{matrix} 1+2, 2+3, 3+4 \\ 1+3, 2+4 \\ 1+4 \end{matrix} \right]$
 box contains 1, 2, 3, 4. Two chosen with out replacement

b If y = first number - second number, then possible values of y are -3, -2, -1, 1, 2, and 3. ←

c Possible values of z are 0, 1, 2. → EVEN #:

- 1, 2 = ①
- 1, 3 = ②
- 1, 4 = ①
- 2, 3 = ①
- 2, 4 = ②
- 3, 4 = ①

$1 - 2 = -1$	$2 - 1 = 1$
$1 - 3 = -2$	$3 - 1 = 2$
$1 - 4 = -3$	$4 - 1 = 3$
$2 - 3 = -1$	$3 - 2 = 1$
$2 - 4 = -2$	$4 - 2 = 2$
$3 - 4 = -1$	$4 - 3 = 1$

Shows a 4 # slips:
 0: 1, 2 1, 3 2, 3
 1: 1, 4 2, 4 3, 4