

# Ans Key

Name \_\_\_\_\_

CHC  
Math 115  
Exam 3

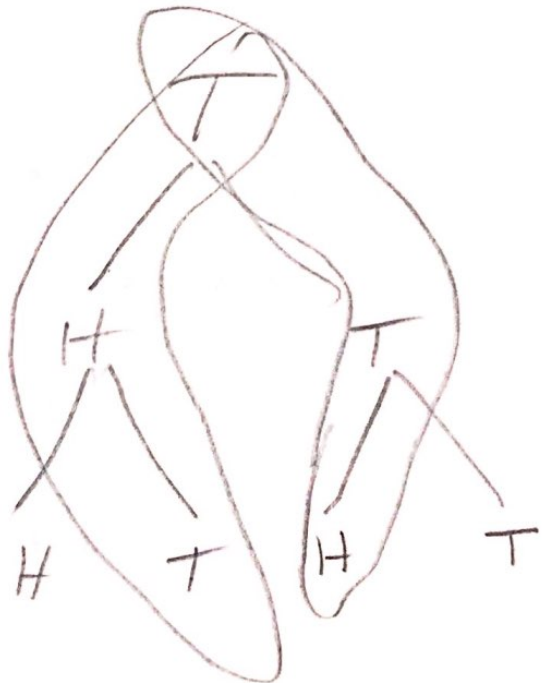
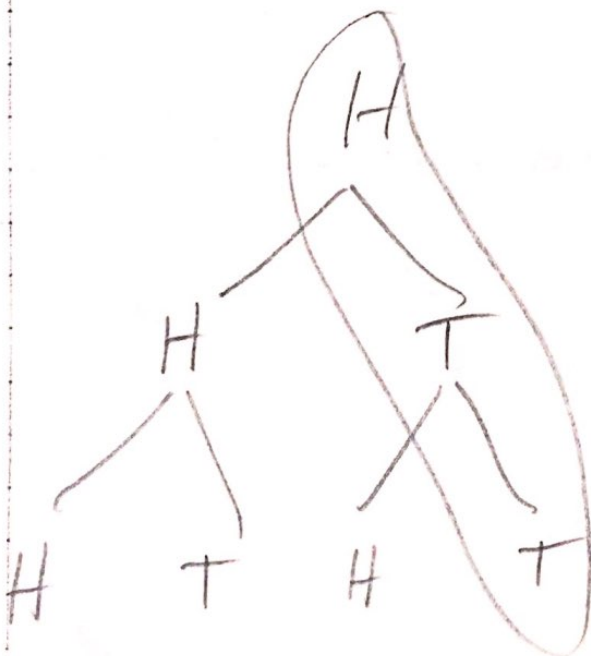
## Instructions:

Show your work and circle your answers.

1. A fair coin is tossed 3 times. Make a tree diagram to figure out how many unique outcomes there are.

a) how many unique outcomes? 8

b) how many outcome have exactly 1 head? 3



2. If a college uses a grading system where  $A=4$ ,  $B=3$ ,  $C=2$ ,  $D=1$ , find the grade point average for a student with the following courses and grades.

<u>Course</u>	<u>Grade</u>	<u>Course Units</u>
Calculus	A	4
Physics	B	4
English	C	3
History	C	2
Gym	A	1

$$\text{GPA} = \frac{4(4) + 4(3) + 3(2) + 2(2) + 1(4)}{(4 + 4 + 3 + 2 + 1)} = 3.0$$

3. For some given data  $\bar{x} = 70$  &  $S_x = 10$

Find the  $Z$  score for a data value,  $X = 55$ .

$$Z = \frac{X - \bar{x}}{S_x} = \frac{55 - 70}{10} = -1.5$$

4. If a data set has a mean of 18, and a standard deviation of 3, find the  $Z$  score when the random variable = 14.

$$Z = \frac{X - \bar{x}}{S_x} = \frac{14 - 18}{3} = -1.33$$

5. The calories in 10 different vanilla ice cream bars were found to be:

342	377	319	353	295
234	294	286	377	182

Enter the data in your calculator and use it to find the five number summary, and enter below.

a)

<u>Min.</u>	<u>182</u>
<u>Q1</u>	<u>286</u>
<u>Med.</u>	<u>307</u>
<u>Q3</u>	<u>353</u>
<u>Max.</u>	<u>377</u>

b) The range is =  $\frac{377}{-182}$  (195)

c) The IQR =  $\frac{353}{-286}$  (67)

6. If a data set has a mean of 125 and standard deviation of 30, what value of the random variable corresponds to a z score of 1.75?

$$z = \frac{x - \bar{x}}{s_x}$$

$$1.75 = \frac{x - 125}{30}$$

$$x - 125 = 30(1.75)$$

$$x - 125 = 52.5$$

$$+125 \quad +125$$

$$x = 177.5$$

3.

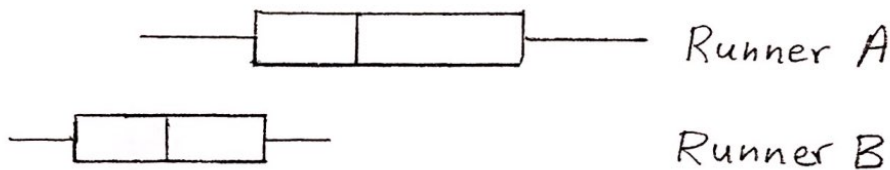
7. If  $\bar{X} = 115$  and  $S_x = 15$ , find the  $X$  value corresponding to a  $Z$  score of  $-1.25$ ?

$$Z = \frac{X - \bar{X}}{S_x}$$
$$-1.25 = \frac{X - 115}{15}$$

$$X - 115 = 15(-1.25)$$

$$\begin{array}{r} X - 115 = -18.75 \\ + 115 \quad + 115 \\ \hline X = 96.25 \end{array}$$

8. Two runners' times are represented by the box plots below.



- a) Would you agree with the statement that B is generally a faster runner? Y/N Y
- b) Would you agree with the statement that A is a more consistent runner? Y/N N
- c) Would you agree with the statement that sometimes Runner A can beat Runner B? Y/N Y

Make a box and whisker plot given the following data:

Low	10
Q1	20
Median	25
Q3	30
High	45

The range =

The IQR =

