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Date: Section: Name:

Help can be found in class lecture, topics review or related PowerPoints
a) What are 4 steps in basic probability problems? List and explain by an example
b) What are three types of probability, list and cite an example for each?
c) What is the range of a probability? (draw a line and label different parts) see the PowerPoint 3A
d) What are the keywords for using multiplication rule and what is its formula?
e) What is the definition of z score, what the z score does and what is its formula?

1) If we roll two die, how many outcomes are possible?
2) If we roll three die, how many outcomes are possible?
3) If we roll two die, find the ability of getting a total of 6?
4) If we roll two die, find the ability of getting a total of 8 ?
5) If we roll two die, find the ability of getting a total that is more than 8 ?
6) $\qquad$

If there are 6 red and 5 blue and 4 green in the box and we draw 3 balls without replacement, then
6) Find the probability that all are red (answer in \% with 2 decimal)
7) Find the probability that none is red (answer in \% with 2 decimal)
6) $\qquad$
7) $\qquad$
8) Find the probability that all are red (answer in \% with 2 decimal)
8) $\qquad$
9) Find the probability that none is red (answer in 5 with 2 decimal)
9) $\qquad$

## If there are $\mathbf{6}$ men and $\mathbf{8}$ women in a group and two are selected without replacement, then

10) Find the probability that both are men (answer in \% with 2 decimal)
11) Find the probability that at least one is man (answer in \% with 2 decimal)
12) Find the probability that at most one is man (answer in \% with 2 decimal)
13) Find the probability that one of each gender is selected (answer in \% with 2 decimal)
14) $\qquad$
15) $\qquad$
16) if a quiz has 5 multiple choice questions each one with 4 answers, if you guess
17) $\qquad$ all of them, then find the probability that all are guessed correctly.

Three students take equivalent tests of statistics and after the test their papers were graded. Find the z-score for each and decide which one has the highest relative score?
15) John got a score of 89 on a test with a mean of 75 and standard deviation of 6 .
15)
16) $\qquad$
17) John got a score of 68 on a test with a mean of 62 and standard deviation of 5 .
18) IQ scores have a mean of 100 and a standard deviation of 16. Albert Einstein reportedly had an IQ of 160 . What is the z -score for his IQ and how unusual is it?
18) $\qquad$
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a) What are 4 steps in basic probability problems? List and explain by an example
b) What are three types of probability, list and cite an example for each?
c) What is the range of a probability? (draw a line and label different parts) see the PowerPoint 3A
d) What are the keywords for using multiplication rule and what is its formula?
e) What is the definition of z score, what the z score does and what is its formula?

1) If we roll two die, how many outcomes are possible?
2) $6 \times 6=36$
3) If we roll three die, how many outcomes are possible?
4) $6 \times 6 \times 6=216$
5) If we roll two die, find the ability of getting a total of 6 ?
6) $\frac{5}{36}=13.89 \%$

$$
(1,5),(2,4),(3,3),(4,2),(5,1)
$$

4) If we roll two die, find the ability of getting a total of 8 ?

$$
(2,6),(3,5),(4,4),(5,3),(6,2)
$$

5) If we roll two die, find the ability of getting a total that is more than 8 ?
6) $\frac{5}{36}=13.89 \%$
$(3,6),(4,5),(4,6),(5,4),(5,5),(5,6),(6,3),(6,4),(6,5),(6,6)$
If there are 6 red and 5 blue and 4 green in the box and we draw 3 balls without replacement, then
7) Find the probability that all are red (answer in \% with 2 decimal)
8) $\frac{6}{15} \frac{5}{14} \frac{4}{13}=4.4 \%$
9) Find the probability that none is red (answer in \% with 2 decimal)
10) $\frac{9}{15} \frac{8}{14} \frac{7}{13}=18.46 \%$

## If there are 6 red and 5 blue and 4 green in the box and we draw 3 balls with replacement, then

8) Find the probability that all are red (answer in \% with 2 decimal)
9) $\frac{6}{15} \frac{6}{15} \frac{6}{15}=6.4 \%$
10) Find the probability that none is red (answer in 5 with 2 decimal)
11) $\frac{9}{15} \frac{9}{15} \frac{9}{15}=21.6 \%$

## If there are 6 men and 8 women in a group and two are selected without replacement, then

10) Find the probability that both are men (answer in \% with 2 decimal)
11) $\frac{6}{14} \times \frac{5}{13}=16.48 \%$
12) Find the probability that at least one is man (answer in \% with 2 decimal)
13) $69.22 \%$

$$
\begin{aligned}
& M W \quad W M \quad M M \\
& \frac{6}{14} \times \frac{8}{13}+\frac{8}{14} \times \frac{6}{13}+\frac{6}{14} \times \frac{5}{13}=69.22 \%
\end{aligned}
$$

12) Find the probability that at most one is man (answer in \% with 2 decimal)
13) $83.51 \%$

$$
\begin{aligned}
& M W \quad W M \\
& \frac{6}{14} \times \frac{8}{13}+\frac{8}{14} \times \frac{6}{13}+\frac{8}{14} \times \frac{7}{13}=83.51 \%
\end{aligned}
$$

13) Find the probability that one of each gender is selected (answer in \% with 2 decimal)
14) $52.74 \%$ MW WM
$\frac{6}{14} \times \frac{8}{13}+\frac{8}{14} \times \frac{6}{13}=52.74 \%$,
15) if a quiz has 5 multiple choice questions each one with 4 answers, if you guess
16) $0.0097 \%$
all of them, then find the probability that all are guessed correctly.

$$
\frac{1}{4} \frac{1}{4} \frac{1}{4} \frac{1}{4} \frac{1}{4}=0.000097 \quad \text { A very rare chance to } \mathfrak{h a p p e n}!!!!
$$

Three students take equivalent tests of statistics and after the test their papers were graded. Find the z -score for each and decide which one has the highest relative score?
15) John got a score of 89 on a test with a mean of 75 and standard deviation of 6 .
15) $\frac{89-75}{6}=2.33$
16) Jose got a score of 92 on a test with a mean of 79 and standard deviation of 7 .
16) $\frac{92-79}{7}=1.86$
17) Joe got a score of 68 on a test with a mean of 62 and standard deviation of 5 .
17) $\frac{68-62}{5}=1.2$

John has the highest $\mathbf{Z}$ score. He did relatively better in his class than Jose and Joe.

