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Indicate the answer choice that best completes the statement or answers the question.

	1	2	3	4	5	6	7	8	9	10
a										
b										
c										
d										
e										

1. Here is an assignment of probabilities to the face that comes up when rolling a die once:

Outcome	1	2	3	4	5	6
Probability	1/7	2/7	0	3/7	0	1/7

there are all kinds of dice

Which of the following is true?

a. This isn't a legitimate assignment of probability, because every face of a die must have probability 1/6.

b. This isn't a legitimate assignment of probability, because it gives probability zero to rolling a 3 or a 5.

c. This isn't a legitimate assignment of probability, because the probabilities do not add to exactly 1.

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d. This isn't a legitimate assignment of probability, because we must actually roll the die many times to learn the true probabilities.

e. This is a legitimate assignment of probability.

2. For a certain random experiment, let's consider four different outcomes, which we'll call A, B, C, and D. It has been determined that the probabilities of these outcomes are as follows:

A	B	C	D
1/6	0	?	2/6

$P(C) = 1 - \left(\frac{1}{6} + 0 + \frac{2}{6}\right)$

$= 1 - \frac{1}{2} = \frac{1}{2} = 0.5$

What is the probability of outcome C?

a. 0.75

b. 0.50

c. 0.25

d. 0

e. There is a mistake in the table, because a probability cannot be 0.

3. A die has six faces, showing 1 to 6 pips (spots). If a die is balanced, all six faces are equally likely. What must be the probability of each face?

balanced means $\frac{1}{6}$

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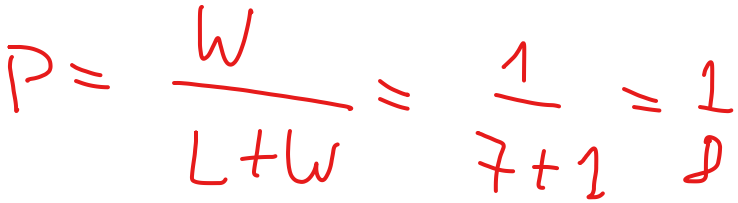
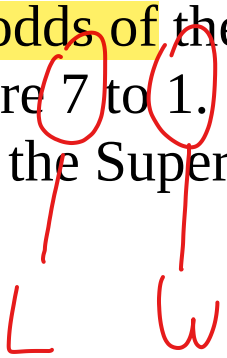
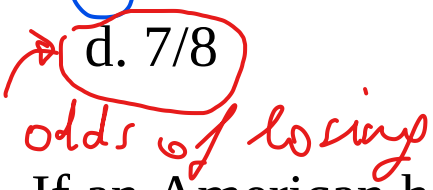
a. 1/10
b. 1/6
c. 1/36
d. Could be any number between 0 and 1.

4. At the beginning of the 2019–2020 season, the odds of the New England Patriots winning the Super Bowl were 7 to 1. This means the probability of the Patriots winning the Super Bowl is

a. 1/6
b. 1/7
c. 1/8
d. 7/8







If an American household were chosen at random and asked how many tablet computers it owned, here are the probabilities as determined by a recent survey:

Number of tablet computers	0	1	2	3
Probability	0.20	0.64	0.12	0.04

5. This is a legitimate assignment of probabilities because it

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satisfies these rules:

a. All the probabilities are between 0 and 1. ✓
b. All the probabilities are between –1 and 1. ✓
c. The sum of all the probabilities is exactly 1. ✓
d. Answers A and C.
e. Answers B and C. ← possible

probabilities are numbers between 0 and 1. Hence, ✓

6. The _____ (blank) of a statistic indicates what values the statistic takes in repeated samples from the same population and how often it takes those values.

✗ a. formula
✗ b. parameter
✗ c. line graph
d. sampling distribution
✗ e. standard deviation

surely, they are also between −1 and 1.
BAD PROBLEM!

An SRS of 1000 American adults is asked, "What do you think is the most important problem facing our country?" Suppose that in fact 40% of all adults would answer "dysfunctional government" if asked this question. The proportion $\hat{p}$ of the sample who answers "dysfunctional government" will vary in repeated sampling. The sampling distribution of $\hat{p}$ is approximately Normal with mean 0.40 and standard deviation 0.015.

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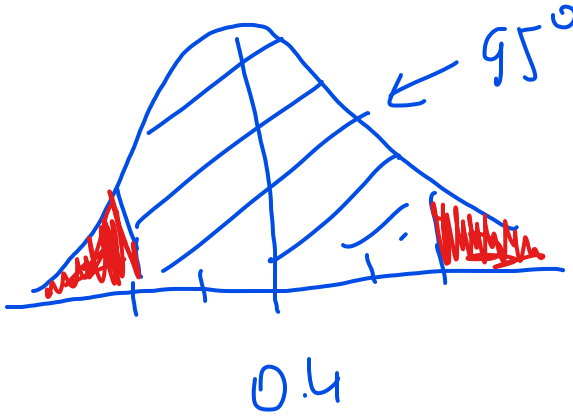
7. What is the probability that $\hat{p}$ does not lie between 0.37 and 0.43?

a. 0.05
b. 0.32
c. 0.60
d. 0.94



8. What percentage of many samples will have a sample proportion $\hat{p}$ that is 0.37 or less?

a. 2.5%
b. 5%
c. 95%
d. 97.5%

If an American household were chosen at random and asked how many tablet computers it owned, here are the probabilities as determined by a recent survey:

Number of tablet computers	0	1	2	3
Probability	0.20	0.64	0.12	0.04

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9. What is the probability that a randomly chosen household owns fewer than two tablet computers?

a. 0.20
b. 0.64
c. 0.84
d. 0.96
e. It is not possible to tell from the given information.

10. The probability that the sum is 7 when you roll two dice is 1/6; the probability that the sum is 11 is 1/18. Suppose you play a game where you win if the sum is 7 or 11. What is the probability that you win?

a. 2/6
b. 2/18
c. 7/6
d. 2/9
e. 2/24

$P(7 \text{ or } 11)$

$= P(7) + P(11) = \frac{1}{6} + \frac{1}{18}$

$= \frac{3}{18} + \frac{1}{18} = \frac{4}{18}$

$= \frac{2}{9}$

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Answer Key

1. e

2. b

3. b

4. c

5. d

6. d

7. a

8. a

9. c

10. d