Name: _____ Class: _____ Date: _____ ID: A

7th Grade Advanced Topic IV Probability, MA.7.P.7.1, MA.7.P.7.2

Multiple Choice

Identify the choice that best completes the statement or answers the question.

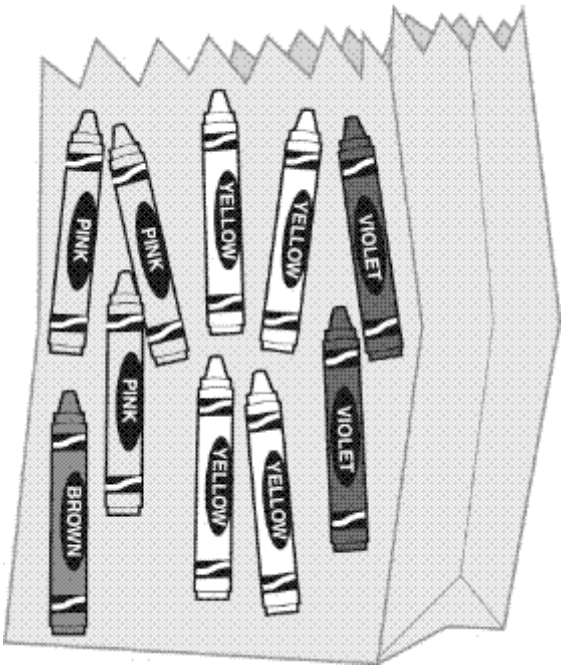
____ 1 In a game, Erin is rolling a fair number cube with faces numbered 1 through 6. Which BEST describes the probability of rolling an even number?

A. impossible
B. equal to the probability of rolling an odd number
C. less likely than the probability of rolling an odd number
D. more likely than the probability of rolling an odd number

____ 2 Linda flipped a fair coin six times, and the result was heads each time. Which statement describes the likelihood of obtaining tails on the seventh flip?

F. It is not at all likely.
G. It is less likely than heads.
H. It is just as likely as heads.
I. It is more likely than heads.

____ **3** Carlson has some crayons in a bag.



Carlson will choose a crayon from the bag without looking. Which color of crayon is he MOST likely to choose?

A. yellow
B. violet
C. pink
D. brown

____ **4** The table below shows the number of each color of Mr. Logan's pencils.

Mr. Logan's Pencils

Color	Number
blue	2
green	1
red	2
yellow	7

If he chooses one pencil without looking, what color is he LEAST likely to choose?

F. blue
G. green
H. red
I. yellow

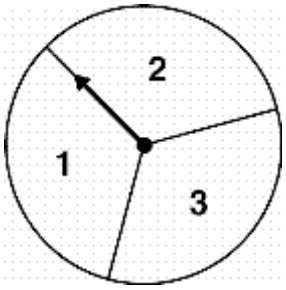
____ **5** The chart below shows the results when the same spinner was spun 35 times.

Spinner Results

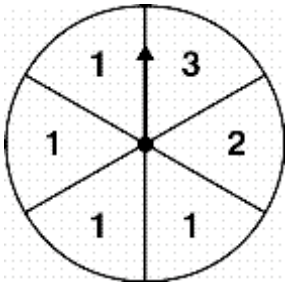
Number	Frequency
1	𝍸 |
2	𝍸 𝍸 𝍸 |
3	𝍸 𝍸 |||

Which spinner would MOST likely produce these results?

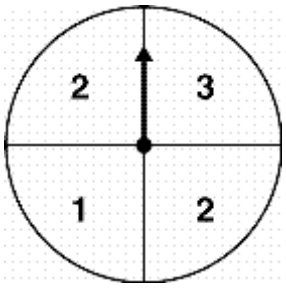
A.



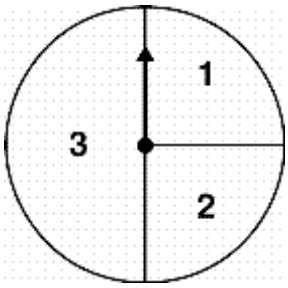
C.



B.



D.



____ **6** Tim conducted a survey of the music preferences of forty of his classmates. The results are shown in the table below.

Music Preference

Type of Music	Number of Students
Country	10
Pop	12
Rock	10
Rap	5
Oldies	3

What is the probability, to the nearest percent, that one of the students surveyed, chosen at random, will prefer Country or Rap music?

F. 15%
G. 25%
H. 38%
I. 50%

____ **7** Mrs. Jacobs put the pom-poms listed below into a box.

Pom-Poms

Color	Number
Green	3
Blue	5
Red	6
Yellow	3

If Mrs. Jacobs reaches into the box and chooses one pom-pom without looking, which two colors is she equally likely to pull out on the first try?

A. Blue and Red
B. Green and Blue
C. Red and Yellow
D. Yellow and Green

____ **8** The 4 possible outcomes when one dime and one penny are flipped at the same time are listed below. dime heads up, penny heads up (HH) dime heads up, penny tails up (HT) dime tails up, penny heads up (TH) dime tails up, penny tails up (TT)Which tally chart is LEAST likely to be the result from flipping the dime and the penny 30 times?

F.

Flipping of Dime and Penny

TT	HH	HT	TH
𝍸 𝍸 |	𝍸 𝍸 |||		𝍸

G.

Flipping of Dime and Penny

TT	HH	HT	TH
𝍸 ||	𝍸 |	𝍸 ||||	𝍸 |||

H.

Flipping of Dime and Penny

TT	HH	HT	TH
𝍸 ||	𝍸 𝍸	𝍸 |||	𝍸

I.

Flipping of Dime and Penny

TT	HH	HT	TH
𝍸 ||||	𝍸 |||	𝍸 |||	𝍸

____ **9** A bag contains 3 marbles. Two of the marbles are red (R) and one marble is green (G). If one marble at a time is taken from the bag without replacement, which diagram represents one possible outcome?

A. R ⟶ R ⟶ R

B. R ⟶ R ⟶ G

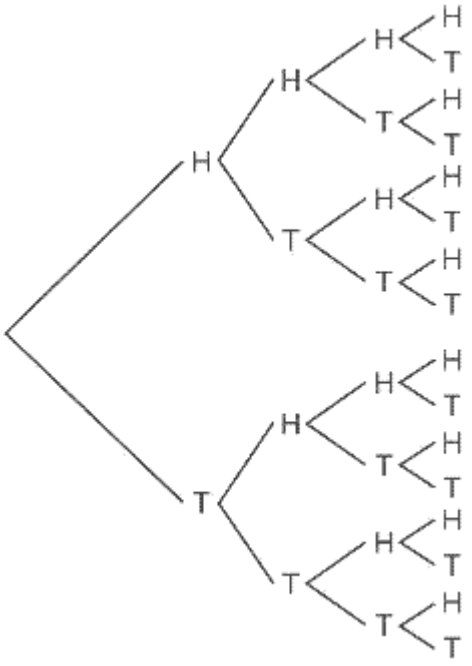
C. R ⟶ G ⟶ G

D. G ⟶ G ⟶ G

____ **10** Bernice placed 5 green paper clips, 6 blue paper clips, and 9 yellow paper clips in a container. She will reach into the container and pull out one paper clip without looking. What is the probability that the paper clip she chooses will be green?

F. 0.20
G. 0.25
H. 0.30
I. 0.33

____ **11** When a fair coin is tossed four times, the outcomes shown below are possible.



What is the probability that heads (H) will appear at least twice when the coin is tossed 4 times?

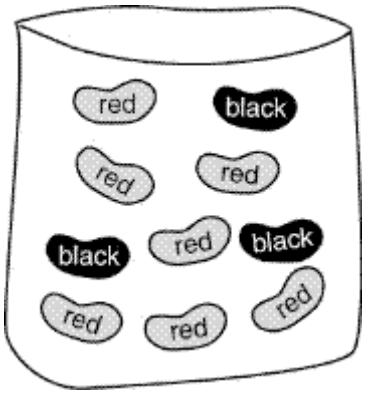
A. $\frac{3}{8}$

B. $\frac{7}{16}$

C. $\frac{5}{8}$

D. $\frac{11}{16}$

____ **12** Erin has a bag with 7 red jelly beans and 3 black jelly beans. She will randomly select one jelly bean at a time from her bag and eat it.



If the first jelly bean she selects is black, what is the probability that the second jelly bean she selects will also be black?

F. $\frac{1}{5}$
G. $\frac{2}{9}$
H. $\frac{3}{7}$
I. $\frac{3}{10}$

____ **13** Tina has 3 red pens and 2 black pens in the bottom of her book bag. All of the pens are the same size and shape. Tina randomly selects a pen to use and then puts it back in her book bag. Later she randomly selects a pen a second time. What is the probability that Tina selects a red pen both times?

A. $\frac{3}{5}$
B. $\frac{3}{10}$
C. $\frac{1}{9}$
D. $\frac{9}{25}$

____ **14** A fair number cube has sides numbered 1 through 6. When the cube is rolled 100 times, which would be MOST likely to occur?

F. All the numbers rolled would be odd.
G. The number 6 would never be rolled.
H. The number 7 would be rolled at least once.
I. An even number would be rolled 50 times.

____ **15** Briana had 1 red, 1 green, and 1 blue mechanical pencil in her backpack. All of the mechanical pencils were the same size and shape. She also had 1 red, 1 green, 1 blue, and 1 yellow eraser cap for her pencils. All of the eraser caps were the same size and shape. Briana will randomly select 1 mechanical pencil and 1 eraser cap. What is the probability that she will select a mechanical pencil and an eraser cap that are the same color?

A. $\frac{1}{12}$
B. $\frac{1}{7}$
C. $\frac{1}{4}$
D. $\frac{1}{3}$

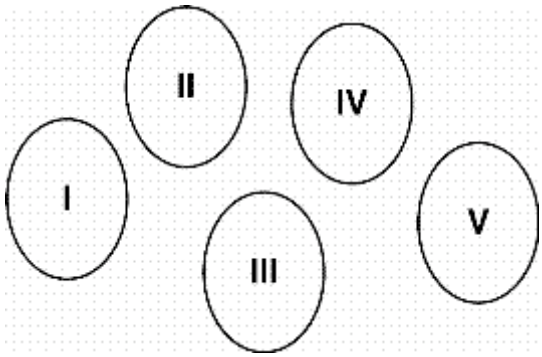
____ **16** There are 3 red, 6 blue, 5 yellow, and 4 green hair bands in a bag. Tatianna wants a blue hair band and a yellow hair band to wear with her school uniform. What is the probability of picking a yellow hair band followed by a blue hair band, if the first hair band drawn is not replaced?

F. $\frac{5}{54}$
G. $\frac{5}{51}$
H. $\frac{1}{2}$
I. $\frac{11}{18}$

____ **17** A fair number cube with faces numbered from 1 to 6 is rolled. What is the probability that the number rolled is some number other than 6?

A. $\frac{5}{6}$
B. $\frac{1}{2}$
C. $\frac{1}{3}$
D. $\frac{1}{6}$

____ **18** Martha placed the numbered shapes shown below into a container.



She reached into the container, pulled out one shape at random, recorded its number, and put the shape back into the container. Martha did this 10 times with the results shown below.

- V was pulled 2 times.
- IV was pulled 3 times.
- III was pulled 2 times.
- II was pulled 1 time.
- I was pulled 2 times.

Which number sentence correctly compares the probability of pulling "II" to the actual results for pulling "II"?

F. $\frac{1}{5} > \frac{1}{10}$
G. $\frac{1}{4} > \frac{1}{9}$
H. $\frac{4}{5} > \frac{1}{10}$
I. $\frac{1}{5} = \frac{1}{10}$

____ **19** Jeremy and Steve are playing with two fair number cubes with faces numbered 1 through 6. The possible sum of the numbers when rolling the two cubes is two through twelve. Jeremy claims that the probability of rolling any one of these numbers with the two cubes is $\frac{1}{11}$. Which statement BEST describes Jeremy's claim?

A. Jeremy is correct because there are 11 numbers possible.
B. Jeremy is incorrect because the probability of rolling a sum of 1 is 0.
C. Jeremy is incorrect because some numbers have a higher probability of occurring than others.
D. Jeremy is correct because there are two ways to roll any number and the probability is $\frac{2}{22}$ or $\frac{1}{11}$.

____ **20** Joel has 8 white golf balls and 7 orange golf balls in a bag. If he removes an orange golf ball and does NOT return it to the bag, what is the probability that the next golf ball he randomly picks from the bag will be white?

F. $\frac{3}{7}$

G. $\frac{7}{15}$

H. $\frac{8}{15}$

I. $\frac{4}{7}$

GR 7 Advanced - Topic IV Assessment
TEACHER ANSWER KEY

7th Grade Advanced Topic IV Probability, MA.7.P.7.1, MA.7.P.7.2
Answer Section

MULTIPLE CHOICE

1 ANS: B

	Feedback
A	It is possible to roll an even number on a standard die
B	**Correct**
C	There are an equal number of odd and even numbers so it could not be less likely to roll an even than an odd number
D	There are an equal number of odd and even numbers so it could not be less likely to roll an even than an odd number

PTS: 1 DIF: L REF: Math
OBJ: MA.7.P.7.1 Determine the outcome of an experiment and predict which events are likely or unlikely, and if the experiment is fair or unfair. STA: MA.7.P.7.1
TOP: MA.7.P.7 Probability KEY: Webb: Moderate | Grade 07
MSC: ItemCode: MF202100

2 ANS: H

	Feedback
F	Does not understand that each flip is independent
G	Does not understand that each flip is independent
H	**Correct**
I	Does not understand that each flip is independent

PTS: 1 DIF: M REF: Math
OBJ: MA.7.P.7.1 Determine the outcome of an experiment and predict which events are likely or unlikely, and if the experiment is fair or unfair. STA: MA.7.P.7.1
TOP: MA.7.P.7 Probability KEY: Webb: Moderate | Grade 07
MSC: ItemCode: MF205028

3 ANS: A

	Feedback
A	**Correct**
B	Does not understand probability
C	Miscounted
D	Least likely

PTS: 1 DIF: L REF: Math
OBJ: MA.7.P.7.1 Determine the outcome of an experiment and predict which events are likely or unlikely, and if the experiment is fair or unfair. STA: MA.7.P.7.1
TOP: MA.7.P.7 Probability KEY: Webb: Moderate | Grade 07
MSC: ItemCode: MF208464

4 ANS: G

	Feedback
F	Does not understand if an event is least likely to occur
G	**Correct**
H	Chose the color most likely to be selected
I	Does not understand if an event is least likely to occur

PTS: 1 DIF: H REF: Math
OBJ: MA.7.P.7.1 Determine the outcome of an experiment and predict which events are likely or unlikely, and if the experiment is fair or unfair. STA: MA.7.P.7.1
TOP: MA.7.P.7 Probability KEY: Webb: Moderate | Grade 07
MSC: ItemCode: MF209618

5 ANS: B

	Feedback
A	Each number on this spinner would show up about $\frac{1}{3}$ of the time each
B	**Correct**
C	$\frac{2}{3}$ of the spins should be a 1 on this spinner
D	Confused results for 2 and 3

PTS: 1 DIF: H REF: Math
OBJ: MA.7.P.7.1 Determine the outcome of an experiment and predict which events are likely or unlikely, and if the experiment is fair or unfair. STA: MA.7.P.7.1
TOP: MA.7.P.7 Probability KEY: Webb: High | Grade 07
MSC: ItemCode: MF211184

6 ANS: H

	Feedback
F	15 is the number of students who prefer Country or Rap
G	Country by itself would be 25%
H	**Correct**
I	Country and Rock together would be 50%

PTS: 1 DIF: M REF: Math
OBJ: MA.7.P.7.1 Determine the outcome of an experiment and predict which events are likely or unlikely, and if the experiment is fair or unfair. STA: MA.7.P.7.1
TOP: MA.7.P.7 Probability KEY: Webb: Moderate | Grade 07
MSC: ItemCode: MF214833

7 ANS: D

	Feedback
A	Chose two colors most likely
B	Chose lowest number and adjacent color in table
C	Chose lowest number and adjacent color in table
D	**Correct**

PTS: 1 DIF: M REF: Math
OBJ: MA.7.P.7.1 Determine the outcome of an experiment and predict which events are likely or unlikely, and if the experiment is fair or unfair. STA: MA.7.P.7.1
TOP: MA.7.P.7 Probability KEY: Webb: Moderate | Grade 07
MSC: ItemCode: MF215013

8 ANS: F

	Feedback
F	**Correct**
G	Expected outcome
H	Close to expected outcome
I	Close to expected outcome

PTS: 1 DIF: M REF: Math
OBJ: MA.7.P.7.1 Determine the outcome of an experiment and predict which events are likely or unlikely, and if the experiment is fair or unfair. STA: MA.7.P.7.1
TOP: MA.7.P.7 Probability KEY: Webb: Moderate | Grade 07
MSC: ItemCode: MF215165

9 ANS: B

	Feedback
A	Three white marbles
B	**Correct**
C	Two white marbles
D	Three black marbles

PTS: 1 DIF: M REF: Math
OBJ: MA.7.P.7.1 Determine the outcome of an experiment and predict which events are likely or unlikely, and if the experiment is fair or unfair. STA: MA.7.P.7.1
TOP: MA.7.P.7 Probability KEY: Webb: Moderate | Grade 07
MSC: ItemCode: MF215166

10 ANS: G

	Feedback
F	Mistakenly simplified $\frac{5}{10}$ to the fraction $\frac{1}{5}$
G	**Correct**
H	Probability of selecting a blue paper clip
I	Probability of selecting 5 green paper clips out of the 15 blue and yellow paper clips; excluded green from total

PTS: 1 DIF: M REF: Math
OBJ: MA.7.P.7.1 Determine the outcome of an experiment and predict which events are likely or unlikely, and if the experiment is fair or unfair. STA: MA.7.P.7.1
TOP: MA.7.P.7 Probability KEY: Webb: Low | Grade 07
MSC: ItemCode: MFIBM11620

11 ANS: D

	Feedback
A	Probability of at least 2 heads if flipped 3 times
B	Probability of exactly 2 heads
C	Probability of 2 or 3 heads
D	**Correct**

PTS: 1 DIF: M REF: Math
OBJ: MA.7.P.7.2 Determine, compare, and make predictions based on experimental or theoretical probability of independent or dependent events, STA: MA.7.P.7.2
TOP: MA.7.P.7 Probability KEY: Webb: Moderate | Grade 07
MSC: ItemCode: MF200000

12 ANS: G

	Feedback
F	Forgot to take away jelly bean eaten from total only $\left(\frac{2}{10}\right)$
G	**Correct**
H	Ratio of black to red
I	Probability of first jelly bean selected being black

PTS: 1 DIF: H REF: Math
OBJ: MA.7.P.7.2 Determine, compare, and make predictions based on experimental or theoretical probability of independent or dependent events, STA: MA.7.P.7.2
TOP: MA.7.P.7 Probability KEY: Webb: Moderate | Grade 07
MSC: ItemCode: MF200507

13 ANS: D

	Feedback
A	Probability of drawing 1 red pen 1 time
B	Forgot that the pen is returned: $\frac{3}{5} \times \frac{2}{4} = \frac{6}{20} = \frac{3}{10}$
C	$\frac{1}{3} \times \frac{1}{3} = \frac{1}{9}$
D	**Correct**

PTS: 1 DIF: M REF: Math
OBJ: MA.7.P.7.2 Determine, compare, and make predictions based on experimental or theoretical probability of independent or dependent events, STA: MA.7.P.7.2
TOP: MA.7.P.7 Probability KEY: Webb: Moderate | Grade 07
MSC: ItemCode: MF200563

14 ANS: I

	Feedback
F	Possible outcome, but not most likely
G	Possible outcome, but not most likely
H	Impossible outcome
I	**Correct**

PTS: 1 DIF: L REF: Math
OBJ: MA.7.P.7.2 Determine, compare, and make predictions based on experimental or theoretical probability of independent or dependent events, STA: MA.7.P.7.2
TOP: MA.7.P.7 Probability KEY: Webb: Moderate | Grade 07
MSC: ItemCode: MF201151

15 ANS: C

	Feedback
A	1 out of 12 total choices
B	1 out of 7 total pencils and erasers
C	**Correct**
D	1 out of 3 choices of pencils

PTS: 1 DIF: H REF: Math
OBJ: MA.7.P.7.2 Determine, compare, and make predictions based on experimental or theoretical probability of independent or dependent events, STA: MA.7.P.7.2
TOP: MA.7.P.7 Probability KEY: Webb: Moderate | Grade 07
MSC: ItemCode: MF201879

16 ANS: G

	Feedback
F	$\frac{5}{18} \times \frac{6}{18}$
G	**Correct**
H	$\frac{3+6}{18}$
I	$\frac{\text{Yellow} + \text{Blue}}{\text{Total}}$

PTS: 1 DIF: M REF: Math
OBJ: MA.7.P.7.2 Determine, compare, and make predictions based on experimental or theoretical probability of independent or dependent events, STA: MA.7.P.7.2
TOP: MA.7.P.7 Probability KEY: Webb: Moderate | Grade 07
MSC: ItemCode: MF208314

17 ANS: A

	Feedback
A	**Correct**
B	Probability of factors of 6, excluding 1
C	Probability of factors of 3
D	Probability that it is a 6

PTS: 1 DIF: L REF: Math
OBJ: MA.7.P.7.2 Determine, compare, and make predictions based on experimental or theoretical probability of independent or dependent events, STA: MA.7.P.7.2
TOP: MA.7.P.7 Probability KEY: Webb: Moderate | Grade 07
MSC: ItemCode: MF212726

18 ANS: F

	Feedback
F	**Correct**
G	Compared odds
H	Compared probability of shapes not labeled II with actual results for pulling II
I	Correct values but not compared correctly

PTS: 1 DIF: H REF: Math
OBJ: MA.7.P.7.2 Determine, compare, and make predictions based on experimental or theoretical probability of independent or dependent events, STA: MA.7.P.7.2
TOP: MA.7.P.7 Probability KEY: Webb: Moderate | Grade 07
MSC: ItemCode: MF217082

19 ANS: C

	Feedback
A	This is true, but probabilities for some numbers are different from others
B	Sees numerator as a sum
C	**Correct**
D	Some numbers have more than two ways of occuring

PTS: 1 DIF: M REF: Math
OBJ: MA.7.P.7.2 Determine, compare, and make predictions based on experimental or theoretical probability of independent or dependent events, STA: MA.7.P.7.2
TOP: MA.7.P.7 Probability KEY: Webb: Moderate | Grade 07
MSC: ItemCode: MF217476

20 ANS: I

	Feedback
F	Probability that the next ball will also be orange
G	Probability of selecting an orange ball from the original 15
H	Probability of selecting a white ball from the original 15
I	**Correct**

PTS: 1 DIF: M REF: Math
OBJ: MA.7.P.7.2 Determine, compare, and make predictions based on experimental or theoretical probability of independent or dependent events, STA: MA.7.P.7.2
TOP: MA.7.P.7 Probability KEY: Webb: Moderate | Grade 07
MSC: ItemCode: MFIBM11567