Intro to Probability Pre-Test

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1. A fair coin is thrown in the air four times. If the coin lands with the head up on the first three tosses, what is the probability that the coin will land with the head up on the fourth toss?

   A. 0

   B. $\dfrac{1}{16}$

   C. $\dfrac{1}{8}$

   D. $\dfrac{1}{2}$

2. How many different three-digit numbers can be made from the digits 6, 8, and 9 if each digit appears only one in the arrangement?

   A. 2

   B. 6

   C. 12

   D. 120

3. A standard deck of cards is shuffled. What is the probability of choosing the 5 of diamonds?

   A. $\dfrac{1}{5}$

   B. $\dfrac{1}{13}$

   C. $\dfrac{5}{52}$

   D. $\dfrac{1}{52}$

4. When you roll a die, what is the probability that the number rolled is greater than 2 and even?

   A. $\dfrac{1}{2}$

   B. $\dfrac{1}{3}$

   C. $\dfrac{2}{3}$

   D. $\dfrac{5}{6}$

5. How many elements are in the sample space of rolling one die?

A. 6

B. 12

C. 24

D. 36

6. Two cards are drawn at random from a standard deck of 52 cards, without replacement. What is the probability of drawing a 7 and a king in that order?

A. $\dfrac{4}{51}$

B. $\dfrac{4}{52}$

C. $\dfrac{4}{256}$

D. $\dfrac{4}{663}$

7. A movie theatre sells 3 sizes of popcorn (small, medium, and large) with 3 choices of toppings (no butter, butter, extra butter). How many possible ways can a bag of popcorn be purchased?

A. 1

B. 3

C. 9

D. 27

8. A piggybank contains 2 quarters, 3 dimes, 4 nickels, and 5 pennies. One coin is removed at random. What is the probability that the coin will be a dime or a nickel?

A. $\dfrac{3}{14}$

B. $\dfrac{7}{14}$

C. $\dfrac{1}{2}$

D. $\dfrac{1}{7}$

9. Students were trying to guess the number of blue marbles in a bag of 50 marbles. Each of the 30 students took turns drawing a marble from the bag, looking at it, and then returning it to the bag. The results are shown in the table.

Color	Number of Times Drawn from Bag
Blue	20
Red	2
Yellow	0
Green	8

Based on these results, what would be the best estimate for the number of blue marbles in the bag?

A. 20

B. 33

C. 40

D. 67

10. A number cube was tossed 30 times. The results are shown in the table below.

Number Cube Results

Face	Results of Toss
●	5
●●(two)	7
●●●(three)	5
●●●●(four)	6
●●●●●(five)	4
●●●●●●(six)	3

If the number cube is tossed 30 times, for which face does the experimental probability match its theoretical probability?

A   ●●●
    ●●●

B   ●●
    ●●

C   ●
    ●●

D   ●
    ●

11. Derek placed 2 red tiles, 10 blue tiles, 5 green tiles, and 3 yellow tiles in a bag. He challenged his friends to draw randomly the 2 red tiles from the bag. Susan accepted the challenge. She drew one tile, did not replace it, and drew a second tile. What is the probability that Susan will draw 2 red tiles?
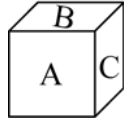
A. $\dfrac{1}{10}$

B. $\dfrac{1}{19}$

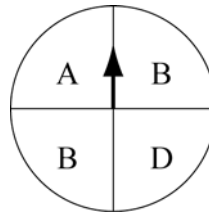C. $\dfrac{1}{100}$

D. $\dfrac{1}{190}$

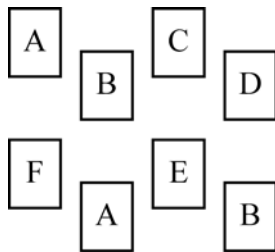**12.** Which of the following models may be used to simulate a 1 in 4 chance of having B as an outcome?

A.

B
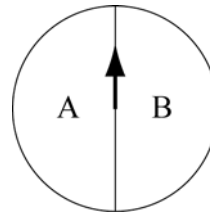
A   C
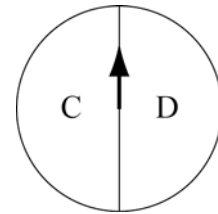
Hidden letters: D, E, F
Roll the letter cube.

C.

A   B
B   D

Spin the spinner.

B.

A
  B
    C
      D
F
  A
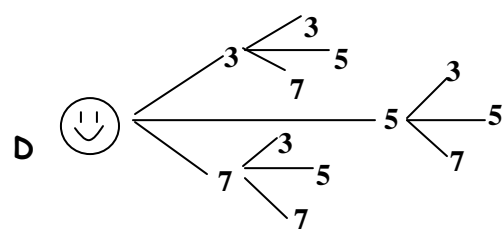   E
      B

Select a card.

D.

A   B   C   D

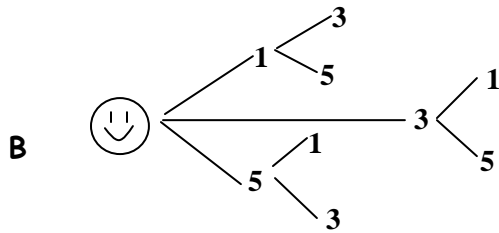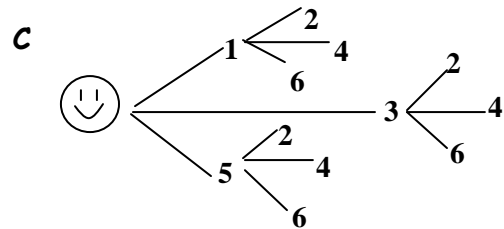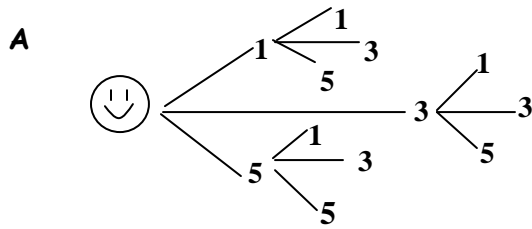Spin the   Spin the
spinner.   spinner.

13. You roll 2 number cubes (each numbered 1 – 6). Which tree diagram represents all of the possible ways to roll a pair of odd numbers?

A

B

C

D

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14. The 6 cards below were placed in a bag.

| H | O | T | D | O | G |

A card is randomly drawn from the bag and not replaced. What is the probability of drawing an "O" card and then drawing another "O" card?

A. $\frac{1}{3}$

B. $\frac{1}{15}$

C. $\frac{2}{15}$

D. $\frac{1}{18}$

15. Jordan wants the probability of drawing a blue tile and then drawing a second blue tile to be $\frac{1}{28}$, if the first blue tile is not replaced. If there will only be 2 blue tiles in the bag, how many total tiles should be placed in the bag?

A. 28 tiles

B. 14 tiles

C. 8 tiles

D. 4 tiles

16. In a town of 32,000 people, 640 were asked what their favorite sport was. Only 223 people named rowing. About how many people in town would say rowing is their favorite activity?

   A. 50

   B. 143

   C. 223

   D. 11,500

17. A local pizza shop makes pizzas to order using 3 kinds of crusts and 8 different toppings. The choices are shown in the table. Use a diagram to show the possible one topping pizzas that could be made.

Crust choices	Toppings
Wheat	Extra cheese
Crispy thin	Pepperoni
Cheese stuffed	Sausage
	Hamburger
	Black olives
	Mushrooms
	Onions
	Green peppers

How many options are there for one-topping pizzas at this pizza shop? Write and bubble your answer on the grid below.

⊕ ⊖	⊙	⊙	⊙	⊙	⊙	⊙	⊙
	⓪	⓪	⓪	⓪	⓪	⓪	⓪
	①	①	①	①	①	①	①
	②	②	②	②	②	②	②
	③	③	③	③	③	③	③
	④	④	④	④	④	④	④
	⑤	⑤	⑤	⑤	⑤	⑤	⑤
	⑥	⑥	⑥	⑥	⑥	⑥	⑥
	⑦	⑦	⑦	⑦	⑦	⑦	⑦
	⑧	⑧	⑧	⑧	⑧	⑧	⑧
	⑨	⑨	⑨	⑨	⑨	⑨	⑨