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Math Activities

## Study Island 7th Grade Math - Understanding Probability

Question 1 .
Which of the following is a true statement?
A. A probability near 1 indicates an unlikely event.
B. A probability near 0 indicates a likely event.
C. A probability near $\frac{1}{2}$ indicates an unlikely event.
D. A probability near 1 indicates a likely event.

## Question 2.

Two experiments are defined below. An event is defined for each of the experiments.
Experiment I: Elena spins the spinner shown in the image.
Event $A$ : The arrow is on the red quarter of the spinner when it stops spinning.


Experiment II: Sam flips a fair coin twice.
Event B: The coin lands on tails the first flip, and the coin lands on heads the second flip.
Which statement about Event $A$ and Event $B$ is true?
A. It is not possible to determine which event is more likely to occur.
B. Event $A$ is more likely to occur than Event B.
C. Event $A$ is less likely to occur than Event $B$.
D. Both events are equally likely to occur.

## Question 3 .

The probability of randomly selecting a green marble from a bag of 20 marbles is $\frac{1}{20}$. Which of the following describes the likelihood of selecting a green marble?
A. likely
B. unlikely
C. neither unlikely nor likely

## Question 4.

Richard is playing a game where he draws one playing card each out of two stacks of four cards. The image below shows all possible products for the two numbers on the cards.

| Product of Two Cards |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Value of Card 2 |  |  |  |
|  |  | 1 | 2 | 5 | 9 |
|  | 4 | 4 | 8 | 20 | 36 |
|  | 3 | 3 | 6 | 15 | 27 |
|  | 1 | 1 | 2 | 5 | 9 |
|  | 7 | 7 | 14 | 35 | 63 |

Is Richard more likely to draw two cards with a product that is an even number or two cards with a product that is a single digit?
A. Richard is more likely to draw two cards with a product that is a single digit, because $\frac{11}{16}>\frac{7}{16}$.
B. Richard is more likely to draw two cards with a product that is an even number,
because $\frac{9}{16}>\frac{7}{16}$.
C. Richard is more likely to draw two cards with a product that is a single digit, because $\frac{9}{16}>\frac{7}{16}$.
D. Richard is equally likely to draw two cards with a product that is an even number, or a product that is a single number, because $\frac{9}{16}=\frac{9}{16}$.

## Question 5.

Directions: Drag the tiles to the correct boxes to complete the pairs. Not all tiles will be used.
Match each event with its likelihood of occurrence.
an event that is certain
an event that is impossible
an event that is unlikely


## Question 6.

Fiona has a box full of art supplies. The probability of randomly picking up a paint brush is 0.5 .
Which of the following describes the likelihood of picking a paint brush?
A. unlikely
B. neither unlikely nor likely
C. likely

## Question 7 .

Two experiments are defined below. An event is defined for each of the experiments.
Experiment I: Lisa randomly picks a tile from the set shown in the image.
Event A: Lisa picks an M or a Q.


Experiment II: Josh spins the spinner shown in the image.
Event B: The arrow is on a green or red sector of the spinner when it stops spinning.


Which statement about Event $A$ and Event $B$ is true?
A. Event $A$ is more likely to occur than Event B.
B. Event A is less likely to occur than Event B .
C. It is not possible to determine which event is more likely.
D. Both events are equally likely to occur.

## Question 8.

Raymond has a bag full of old coins. The probability of randomly picking up a coin with an eagle on one side is 0.12 .

Which of the following describes the likelihood of picking a coin with an eagle on one side?
A. likely
B. neither unlikely nor likely
C. unlikely

## Question 9 .

Travis performed an experiment in which he spun a spinner multiple times. The sections of the spinner are red, orange, yellow, green, and blue. The results of his experiment are shown below.

| Spinner Result | Frequency |
| :---: | :---: |
| red | 10 |
| orange | 15 |
| yellow | 8 |
| green | 20 |
| blue | 7 |

Based on the experiment above, which of the following statements is true?
A. It is twice as likely for the next spin to land on green as opposed to red.
B. It is less likely for the next spin to land on red as opposed to yellow.
C. It is equally likely for the next spin to land on yellow or blue.
D. It is more likely for the next spin to land on orange as opposed to green.

## Question 10 .

The probability of randomly selecting a white flower from a garden that has green, pink, yellow, and white flowers is $6 \%$.

Which of the following describes the likelihood of selecting a white flower?
A. likely
B. unlikely
C. neither unlikely nor likely

# Answers: Math - Understanding Probability 

1. D
2. D
3. B
4. C
5. --
6. B
7. B
8. C
9. A
10. B

## Explanations: Math - Understanding Probability

1. The probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring.

The closer a probability is to 0 , the lesser the likelihood of the event occurring. The closer a probability is to 1 , the greater the likelihood of the event occurring.

Therefore, a probability near 1 indicates a likely event.
2. First, find the probability of Event A . There are 4 quarters on the spinner and only one of the quarters is red.

So, the probability that the arrow is on the red quarter of the spinner when it stops spinning is $\frac{1}{4}$.
Next, find the probability of Event B. There are 4 different outcomes of flipping a coin twice and the coin landing on tails the first flip and on heads the second flip is only one of the outcomes.

So, the probability that the coin lands on tails the first flip and on heads the second flip is $\frac{1}{4}$.
Thus, both events are equally likely to occur because $\frac{1}{4}=\frac{1}{4}$.
3. Since the probability is closer to 0 than it is to $\frac{1}{2}$, the likelihood of selecting a green marble is unlikely.
4. First, find the probability that Richard draws two cards with a product that is an even number.

The table shows that there are seven products that are even numbers.
So, the probability that Richard draws two cards with a product that is an even number is $\frac{7}{16}$.
Next, find the probability that Richard draws two cards with a product that is a single digit.
The table shows that there are nine products that are single digits.
So, the probability that Richard draws two cards with a product that is a single digit is $\frac{9}{16}$.
Therefore, Richard is more likely to draw two cards with a product that is a single digit, because $\frac{9}{16}>\frac{7}{16}$.
5. The probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. A probability near 0 indicates an unlikely event, a probability of $\frac{1}{2}$ indicates an event that is just as unlikely as likely, and a probability near 1 indicates a likely event. Determine the likelihood of each event.
Randomly selecting a vowel in the word, "RAISED"
There are 3 vowels in the 6 -letter word. Therefore, the likelihood of the event occurring is $\frac{3}{6}$, or $\frac{1}{2}$. This means the event is equally likely as unlikely to occur.
Randomly selecting an odd number in the set, $\{3,5,7,11,13\}$
There are 5 odd numbers in the set of 5 numbers. Therefore, the likelihood of the event occurring is $\frac{5}{5}$, or 1 . This means the event is certain to occur.
Randomly selecting "drums" in the list, "guitar, piano, cello, flute"
The word, "drums" appears 0 times in the list of 4 words. Therefore, the likelihood of the event occurring is $\frac{0}{4}$, or 0 . This means the event is impossible to occur.
Randomly selecting a boy in a list of 20 boys and 10 girls

$$
\frac{20}{20} \quad \frac{2}{2}
$$

There are 20 boys in a group of 30 boys and girls. Therefore, the likelihood of the event occurring is $\frac{20}{30}$, or $\frac{2}{3}$. This means the event is likely to occur.
6. Rewrite the given probability of 0.5 as a fraction.

$$
0.5=\frac{5}{10}=\frac{1}{2}
$$

Since the probability is equal to $\frac{1}{2}$, it is the same distance from both 0 and 1 . Therefore, the likelihood of picking a paint brush is neither unlikely nor likely.
7. First, find the probability of Event A. There are 6 tiles that contain one tile marked M and one tile marked Q.

So, the probability that Lisa picks an M or a Q is $\frac{2}{6}$ or $\frac{1}{3}$.
Next, find the probability of Event B. There are 6 sectors on the spinner containing 2 green sectors and 2 red sectors.
So, the probability that the arrow lands on a green or red sector of the spinner when it stops spinning is $\frac{4}{6}$ or $\frac{2}{3}$.
Thus, Event A is less likely to occur than Event B because $\frac{1}{3}<\frac{2}{3}$.
8. Rewrite the given probability of 0.12 as a fraction.

$$
0.12=\frac{12}{100}=\frac{3}{25}
$$

Since the probability is closer to 0 than it is to $\frac{1}{2}$, the likelihood of picking a coin with an eagle on one side is unlikely.
9. In the experiment, the spinner landed on green 20 times and landed on red 10 times.

Since the spinner landed on green twice as many times as it landed on red, based on the experiment, it is twice as likely for the next spin to land on green as opposed to red.
10. Rewrite the given probability of $6 \%$ as a fraction.

$$
6 \%=\frac{6}{100}=\frac{3}{50}
$$

Since the probability is closer to 0 than it is to $\frac{1}{2}$, the likelihood of selecting a white flower is unlikely.

Name: $\qquad$

## Single-Step Percent Problems

Read each question below. Circle the letter of the correct answer.

1. 18 is what percent of 25 ?
A. $70 \%$
B. $72 \%$
C. $75 \%$
D. $82 \%$
2. What is $60 \%$ of 50 ?
A. 20
B. 25
C. 30
D. 40
3. Chris has 12 belts. Nine of the belts are wide and the rest are narrow. What percent of the belts are narrow?
A. $75 \%$
B. $34 \%$
C. $30 \%$
D. $25 \%$
4. Marla pays $\$ 42.25$ for dinner. If she leaves a $20 \%$ tip, how much will she spend on dinner and the tip?
A. $\$ 48.59$
B. $\$ 50.07$
C. $\$ 50.70$
D. $\$ 52.81$
5. What is $16 \%$ of 425 ?
A. 68
B. 85
C. 340
D. 357
6. Dan got 44 of 55 problems correct on a math test. What percent did he correctly answer?
A. $75 \%$
B. $80 \%$
C. $82 \%$
D. $85 \%$
7. Sasha bought a hardcover book for $\$ 14.99$. The sales tax is $7 \%$. How much did Sasha spend for the hardcover book?
A. $\$ 16.44$
B. $\$ 16.40$
C. $\$ 16.04$
D. $\$ 16.00$
8. Ray bought a shirt on sale for $\$ 18.00$. The original price was $\$ 24.00$. What percent was the discount?
A. $75 \%$
B. $40 \%$
C. $35 \%$
D. 25
9. Mario bought a pair of sneakers for $25 \%$ off the regular price of $\$ 89.99$. What is the sale price of the sneakers?
A. $\$ 67.49$
B. $\$ 68.39$
C. $\$ 69.29$
D. $\$ 71.99$
10. Lin works at an animal shelter. After three months on the job, her hourly rate increased from $\$ 7.75$ to $\$ 8.45$ an hour. What percent did her hourly rate increase?
A. $3 \%$
B. $5 \%$
C. $8 \%$
D. $9 \%$

## Answer Key

1. $B$
2. C
3. D
4. C
5. A
6. B
7. C
8. D
9. A
10. D

Name: $\qquad$

## Converting Units

Read each question below. Circle the letter of the correct answer.

1. Complete: $80 \mathrm{~mm}=$ $\qquad$ cm
A. 800
B. 80
C. 8
D. 0.8
2. Complete: $90 \mathrm{~m}=$ $\qquad$ cm
A. 900
B. 90
C. 9
D. 0.9
3. Complete: 7 days $=$ $\qquad$ h
A. 192
B. 168
C. 84
D. 0.25
4. Complete: $45^{\circ} \mathrm{C}=$ $\qquad$ ${ }^{\circ} \mathrm{F}$
A. 81
B. 77
C. 25
D. 13
5. Complete: $8.5 \mathrm{gal}=$ $\qquad$ pt
A. 17
B. 34
C. 68
D. 136
6. Complete: $4.5 \mathrm{~L}=$ $\qquad$ mL
A. 0.045
B. 0.45
C. 450
D. 4,500
7. Select the conversion factor that you would use to convert quarts to gallons.
A. $4 \mathrm{gal} / 1 \mathrm{qt}$
B. $1 \mathrm{gal} / 4 \mathrm{qt}$
C. $1 \mathrm{qt} / 4 \mathrm{gal}$
D. $4 \mathrm{qt} / 4 \mathrm{gal}$
8. Select the conversion factor that you would use to convert miles to feet.
A. $5,280 \mathrm{ft} / 1 \mathrm{mi}$
B. $1760 \mathrm{ft} / 1 \mathrm{mi}$
C. $1 \mathrm{mi} / 5280 \mathrm{yd}$
D. $1 \mathrm{mi} / 1760 \mathrm{ft}$
9. A brand of apple juice costs $\$ 2.56$ for 64 oz . Find the unit rate.
A. $25 \mathrm{oz} / \mathrm{cent}$
B. 40 cents/oz
C. 4.0 cents/oz
D. $0.25 \mathrm{oz} / \mathrm{cent}$
10. An employee earns $\$ 76$ for 8 hours. Find the employee's pay per hour.
A. $\$ 9.00$
B. $\$ 9.50$
C. $\$ 10.00$
D. $\$ 10.50$

## Answer Key

1. C
2. A
3. $B$
4. A
5. C
6. D
7. B
8. A
9. C
10. B

## 気会 Reading and Literacy

## Study Island 7th Grade Language Arts - Phrases and Clauses

Question 1 .

Beneath the loose floorboard, Janice found her favorite earring, which had been missing for nearly five years.

Which of the following is a preposition from the sentence above?
A. nearly
B. found
C. beneath
D. which

## Question 2.

(1) Jenna was excited to have the house all to herself. (2) She was looking forward to relaxing in a perfectly quiet house. (3) Jenna was enjoying the quiet and her new book. (4) She saw her cat Buttons coming from the kitchen with juice all over him. (5) He must have knocked over the glass I left on the counter, Jenna thought.

As she laughed to herself.
What is the best way to add the dependent clause above to sentence 5 ?
A. He must have knocked over the glass I left on the counter, Jenna thought as she laughed to herself.
B. As Jenna thought he must have knocked over the glass I left on the counter, to herself she laughed.
C. He must have knocked over the glass I left on the counter, as she laughed to herself Jenna thought.
D. As she laughed he must have knocked over the glass I left on the counter, Jenna thought to herself.

## Question 3.

(1) Jenna was excited to have the house all to herself. (2) She was looking forward to relaxing in a perfectly quiet house. (3) Jenna was enjoying the quiet and her new book. (4) She saw her cat Buttons coming from the kitchen with juice all over him. (5) He must have knocked over the glass I left on the counter, Jenna thought.

Although Jenna would have liked a nice dinner with her parents.
What is the best way to add the dependent clause above to sentence 2 ?
A. Although Jenna would have liked a nice dinner with her parents, she was looking forward to relaxing in a perfectly quiet house.
B. She was looking forward to a nice dinner although Jenna would have liked relaxing in a perfectly quiet house with her parents.
C. Although Jenna was looking forward to relaxing she would have liked a nice dinner in a perfectly quiet house with her parents.
D. She would have liked relaxing although Jenna was looking forward to a nice dinner with her parents in a perfectly quiet house.

## Question 4.

(1) Derek's parents said he could have a cell phone. (2) He promised eagerly he would be responsible with his minutes. (3) Derek started talking nonstop on his phone. (4) Derek's parents met with him to talk about his bill. (5) He went over his plan by 100 minutes!

Provided that he stayed within the limits of the plan.
What is the best way to add the dependent clause above to sentence 1?
A. Derek's parents said he could have a cell phone provided that he stayed within the limits of the plan.
B. Provided that Derek's parents said within the limits of the plan he could have a cell phone he stayed.
C. Provided that he stayed Derek's parents said of the plan he could have a cell phone within the limits.
D. Derek's parents said he stayed within the limits provided that he could have a cell phone of the plan.

## Question 5.

Without the company's support, the presidential candidate cannot expect to win the election because the company provides campaign funds.

Which of the following is a prepositional phrase from the sentence above?
A. win the election
B. without the company's support
C. because the company provides
D. the presidential candidate

## Question 6.

What is the BEST way to combine the information in the two clauses below?
Though she started with the flute two years later. Aisha plays the piano and the flute very well now.
A. Though she started with the flute two years later Aisha plays the piano and the flute very well now.
B. Though she started with the flute two years later, Aisha plays the piano and the flute very well now.
C. Though she started with the flute two years later, but Aisha plays the piano and the flute very well now.
D. Though she started with the flute two years later; Aisha plays the piano and the flute very well now.

## Question 7 .

Choose the correct preposition to complete the sentence.
We should arrive at the museum ___ o'clock and tour each of the exhibits.
A. through
B. before
C. without
D. inside

## Question 8.

The tired traveler carefully brushed the dust off his pants and continued his journey down the country road.

Which of the following is a prepositional phrase from the sentence above?
A. carefully brushed
B. his journey
C. the tired traveler
D. off his pants

Question 9 .
(1) Henry has to do the laundry. (2) Henry must also start dinner. (3) Henry was grounded for a whole week for not doing chores. (4) He learned his lesson. (5) He ended up missing his soccer game.

While Henry was sitting alone in his room.
What is the best way to add the dependent clause above to sentence 4 ?
A. In his room, he learned his lesson while Henry sitting home alone.
B. While Henry was sitting alone in his room, he learned his lesson.
C. He learned his lesson while Henry was sitting alone in his room.
D. Henry, while sitting alone in his room, he learned his lesson.

Directions: Drag the tiles to the correct boxes to complete the pairs.
Match each sentence part with the correct classification.
As Meghan paced, I nervously bit my nails. Waiting for the teacher to pass out our test results was stressful for both of us.

```
Waiting for the teacher As Meghan paced | I nervously bit my nails.
```



## Answers: Language Arts - Phrases and Clauses

1. C
2. A
3. A
4. A
5. B
6. B
7. B
8. D
9. B
10. --

## Explanations: Language Arts - Phrases and Clauses

1. The word "beneath" is a preposition that is part of the phrase "beneath the loose floorboard." This provides the information about the earring's location.
2. "As she laughed to herself" is a dependent clause, meaning it cannot stand alone. It needs to be added to an independent clause to be considered a sentence. By adding it to sentence 5, it modifies how Jenna reacted to the situation. There are two ways to add a dependent clause to an independent clause. When you add the dependent clause to the end of the independent clause, like the sentence in the correct answer choice, you do not need a comma to separate the clauses. The word "as" shows the separation in clauses. You can also put the dependent clause before the independent clause and separate them with a comma.
3. "Although Jenna would have liked a nice dinner with her parents" is a dependent clause, meaning it cannot stand alone. It needs to be added to an independent clause to be considered a sentence. By adding it to sentence 2, it modifies the conflict Jenna felt about having the house to herself. There are two ways to add a dependent clause to an independent clause. When you place the dependent clause before the independent clause, like the sentence in the correct answer choice, you need to put a comma at the end of the dependent clause to separate the clauses. If you place the dependent clause at the end of the independent clause, you do not need a comma to show the separation.
4. "Provided that he stayed within the limits of the plan" is a dependent clause, meaning it cannot stand alone. It needs to be added to an independent clause to be considered a sentence. By adding it to sentence 1, it modifies the conditions under which Derek was allowed to have a phone. There are two ways to add a dependent clause to an independent clause. When you add the dependent clause to the end of the independent clause, like the sentence in the correct answer choice, you do not need a comma to separate the clauses. The phrase "provided that" shows the separation in clauses. You can also put the dependent clause before the independent clause and separate them with a comma.
5. The prepositional phrase "without the company's support" begins with the preposition "without." This provides information about what is lacking. The word "to," in this case, is part of the infinitive phrase "to win."
6. The clause "Though she started with the flute two years ago" is a dependent clause. It has a subject-"she"—and a verb-"started"-but it begins with the subordinating conjunction "though." The two should be joined, and a comma should be placed between the clauses because the dependent clause comes before the independent clause.
7. Prepositions are used to connect, to explain, and to show the relationship between ideas and things. In this sentence, the preposition "before" shows what time they will arrive.
8. The prepositional phrase "off his pants" begins with the preposition "off." This provides information about where the dust was. The other prepositional phrase is "down the country road."
9. This is a dependent clause that cannot stand alone. It needs to be added to an independent clause in order to be considered a sentence. In this case, adding it to the beginning of the independent clause in sentence 4 adds information and modifies when Henry learned his lesson.
10. "As Meghan paced" is a dependent clause; although it has a subject and a verb, it is not a complete sentence by itself. "I nervously bit my nails" is an independent clause because it has a subject and a verb, and is a complete sentence on its own. "Waiting for the teacher" is a gerund phrase. A gerund is a verbal noun and is formed by a verb that ends in "-ing."

Name: $\qquad$

## Analogies

Read the question and circle the correct answer.

1. Bloom is to flower as leaf is to
A. daffodil.
B. tree.
C. rose.
D. thorn.
2. Beach is to sand as field is to
A. bird.
B. grass.
C. wood.
D. rain.
3. King is to queen as duke is to
A. duchess.
B. woman.
C. son.
D. daughter.
4. Elephant is to trunk as horse is to
A. mane.
B. carriage.
C. hay.
D. pony.
5. Pitcher is to team as dancer is to
A. feet.
B. shoes.
C. troupe.
D. tap.
6. Bird is to flock as fish is to
A. eel.
B. swim.
C. school.
D. fin.
7. Letter is to word as word is to
A. uppercase.
B. sentence.
C. verb.
D. noun.
8. Snow is to man as sand is to
A. ocean.
B. beach.
C. castle.
D. shell.
9. Teeth are to mouth as hair is to
A. braid.
B. head.
C. baldness.
D. cut.
10. Steps are to stairs as beads are to
A. string.
B. rings.
C. necklace.
D. jewelry.

## Answer Key

1. $B$
2. $B$
3. A
4. A
5. C
6. C
7. $B$
8. C
9. B
10. C

Name: $\qquad$

## Spelling

Choose the correct spelling of the word for each sentence. Circle the letter of the correct answer.

1. I sighed with $\qquad$ when I saw the A on my math test.
A. relief
B. releif
C. raleif
D. none of the above
2. The bus $\qquad$ left his flashing lights on until all of the kids were safely across the street.
A. drivur
B. drivor
C. driver
D. none of the above
3. Can you meet me at the baseball $\qquad$ at $4: 00$ ?
A. feild
B. field
C. feeld
D. none of the above
4. My dad tried to $\qquad$ the air mattress, but discovered there was a small hole.
A. inflate
B. enflate
C. imflate
D. none of the above
5. I gave the $\qquad$ a $\$ 20.00$ bill.
A. casheir
B. cashier
C. casheer
D. none of the above
6. There is a large hole in the $\qquad$ .
A. cieling
B. ceiling
C. ceeling
D. none of the above
7. The party was $\qquad$ , so the girls did not have to wear dresses.
A. informal
B. enformal
C. ienformal
D. none of the above
8. The guest $\qquad$ told us about his trip to South Africa.
A. speakur
B. speakor
C. speaker
D. none of the above
9. The $\qquad$ in my new book is funny.
A. narrater
B. narratur
C. narrator
D. none of the above
10. There are many $\qquad$ of birds that live in the rainforest.
A. speceis
B. species
C. specees
D. none of the above

## Answer Key

1. A
2. C
3. B
4. A
5. B
6. B
7. A
8. C
9. C
10. B
