Lesson 12T ~ Introducing Percents

For each shaded grid, write
• the ratio of the shaded squares to 100 (a fraction)
• the percent of squares shaded as a number with the % sign.

1. 2. 3.

4. Shade 50% of the figure:

Write each percent as a fraction in simplest form.
5. 50%  6. 99%  7. 15%  8. 200%

Write each percent as a decimal.
9. 25%  10. 10%  11. 0.3%  12. 500%

13. If 95% of a drink is real fruit juice, what percent is not real fruit juice?

14. Max found a jacket on sale for 20% off its original price. What percent of the original price will Max pay for the jacket?
Lesson 13T ~ Percents, Decimals and Fractions

Write the shaded part of each shape as a fraction in simplest form, a decimal and a percent.

1. 

Fraction: ______

Decimal: ______

Percent: ______

2. 

Fraction: ______

Decimal: ______

Percent: ______

3. 

Fraction: ______

Decimal: ______

Percent: ______

4. 

Fraction: ______

Decimal: ______

Percent: ______

5. 

Fraction: ______

Decimal: ______

Percent: ______

Write each fraction as a percent.

6. \( \frac{1}{2} \)

7. \( \frac{1}{10} \)

8. \( \frac{2}{3} \)

9. \( 1\frac{1}{2} \)

Write each decimal as a percent.

10. 0.05

11. 0.75

12. 1.25
Order the numbers from least to greatest.

13. 25%, 0.3, \( \frac{1}{2} \)  

Convert 25% to a decimal: _______  
0.3 as a decimal: _______  
Convert \( \frac{1}{2} \) to a decimal: _______  

Write the numbers from smallest to largest.  
(use the original numbers) 

_______, _______, _______  

14. \( \frac{2}{3} \), 60%, 0.65 

Convert \( \frac{2}{3} \) to a decimal: _______  
Convert 60% to a decimal: _______  
0.65 as a decimal: _______  

Write the numbers from smallest to largest.  
(use the original numbers) 

_______, _______, _______, _______  

15. At school, \( \frac{1}{4} \) of the 6th graders interviewed preferred candy to gum. 
   a. What percent of the 6th graders preferred candy to gum? 
   b. What percent of the 6th graders did not prefer candy to gum?
Lesson 14T ~ Percent of a Number

Name__________________________________________      Period______      Date____________

1. Find 50% of $1.00.  

2. Find 90% of $1.00.

Solve each percent problem.

3. 10% of 50 is ________  

   \[0.1 \times 50 = \____\

4. _____ is 5% of 20  

   \[\____ = 0.05 \times 20\]

5. 15% of 80 is ________

6. 25% of 40 is ________  

7. _____ is 200% of 30

8. \(33\frac{1}{3}\)% of 66 is ________

9. 75% of 40 is ________  

10. _____ is 22% of 100

11. 100% of 45 is ________

Draw a line segment that fits each description. Record the length of each new line segment.

12. Draw 50% of the line.

   a. Measure the line using centimeters. ________

   b. Find 50% of the measurement. ________

   c. Draw the new line as long as the answer in part b.

13. Draw 25% of the line. ________

14. Draw 200% of the line. ________
Lesson 15T ~ Percent of a Number

Name__________________________________________      Period______      Date____________

1. Christy planted 60 flowers in her yard for next spring. Of the flowers planted, 25% of the flowers are supposed to be yellow. How many yellow flowers will she have in her yard?

   Solve: 25% of 60 is ________

2. In Ms. Blue’s 6th grade class there are 30 students. Of those students, 40% are boys.
   
   a. How many boys are in Ms. Blue’s 6th grade class?

   b. How many girls are in Ms. Blue’s 6th grade class?

3. Renee found a pair of pants she liked for $40.00. The pants were on sale for 20% off.

   a. How much was the discount on the pants?

   b. What is the sale price for the pants?

Below are two restaurant bills. Each customer left a 15% tip. Find the amount of money left for each tip. Round to the nearest hundredth, if necessary.

4. Total Bill: $24.00

   Tip: __________

5. Total Bill: $10.20

   Tip: __________
6. Carissa went to visit her friend in California. While there, she bought a new pair of shoes for $50.00. The city she bought the shoes in had an 8% sales tax. How much is the sales tax Carissa will pay for the shoes?

7. Eva went to Washington DC on a trip with her family. She bought a book there. The price tag said the book was $24.00. Washington DC has an additional 5% sales tax applied to items.

   a. How much sales tax with Eva pay for the book?

   b. Find the total cost of the book, including sales tax.
Lesson 16T ~ Introduction to Probability

Use the spinner below to determine whether each event it impossible, unlikely, equally likely, likely, or certain.

1. Spinning a 2
2. Spinning an even number
3. Spinning a 1, 2, 3, 4, 5 or 6
4. Spinning a 9

5. Akia wants to skateboard with her friends at the park Saturday. The weatherman said there is a 0.2 chance it will rain.
   a. Write the probability 0.2 as a percent.
   b. Write the probability 0.2 as a fraction.
   c. Do you think it will rain? Why or why not?

6. Andy reached into a bag of 80 jelly beans. There was a \( \frac{3}{4} \) chance the first jelly bean he picked would be white.
   a. Write the probability \( \frac{3}{4} \) as a decimal.
   b. Write the probability \( \frac{3}{4} \) as a percent.

7. Selma knew she had a 10% chance of serving an “Ace” when she played tennis.
   a. Write this percent as a decimal.
   b. Write this percent as a fraction.
8. Marty polled 50 students to see which type of music they preferred. Thirty percent chose rock, 0.2 chose alternative, and \( \frac{1}{2} \) chose hip-hop.

   a. Write each probability as a decimal.

<table>
<thead>
<tr>
<th>Music</th>
<th>Probability</th>
<th>Decimal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rock</td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>Alternative</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>Hip-Hop</td>
<td>( \frac{1}{2} )</td>
<td></td>
</tr>
</tbody>
</table>

   b. Which type of music did most of the students polled choose?

   c. Find the number of students who chose each type of music.

<table>
<thead>
<tr>
<th>Music</th>
<th>Probability</th>
<th>Number of Students (out of 50)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rock</td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>Alternative</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>Hip-Hop</td>
<td>( \frac{1}{2} )</td>
<td></td>
</tr>
</tbody>
</table>

Three different probabilities are given. Order them from least to greatest.

9. 35%, \( \frac{1}{3} \), and 0.3

   Convert 35% to a decimal: _______

   \( \frac{1}{3} \) as a decimal: _______

   0.3 as a decimal: _______

10. 0.15, 25%, \( \frac{1}{5} \)

   0.15 as a decimal: _______

   Convert 25% to a decimal: _______

   Convert \( \frac{1}{5} \) to a decimal: _______

Write the numbers from smallest to largest.

   Use the original numbers.

   ______, _______, _______

   ______, _______, _______
Lesson 17T ~ Experimental Probability

Identify the outcome and sample space for each experiment.

1. Martina flips a nickel and it lands heads.
   
   Outcome: _______
   
   Sample Space: _________________________

2. MacKenzie rolls a number cube and it lands 5.
   
   Outcome: _______
   
   Sample Space: _________________________

3. Trent picks a red marble out of a bag with 1 red marble, 1 blue marble and 1 green marble.
   
   Outcome: _______
   
   Sample Space: _________________________

Solve each problem.

4. Dillon practiced making field goals from the 40 yard line. He made 9 of the 12 field goal attempts he tried. What is the experimental probability he will make the next field goal he attempts from the 40 yard line?

   \[
   \frac{\text{number of field goals made}}{\text{number of field goals attempted}} = \frac{9}{12} = \frac{3}{4}
   \]

5. Zelda hit 12 homeruns out of 20 pitches so far at batting practice. What is the experimental probability she will hit a homerun on the next pitch thrown to her?

6. Cameron put her music player on random play. It chose the same song 2 times out of the last 10 times it played a song. What is the experimental probability it will play that same song for its next selection?
7. Tamara asked people if they would vote for her to be team captain. The results were: yes, yes, yes, yes, no, yes, yes, yes, no, yes.

   a. How many people did Tamara ask?
   b. How many people said yes?
   c. What is the experimental probability the next person will say yes?

8. Winora randomly chose a card from a deck of cards. She put the card back and chose again. Each time she recorded the color of the card: red, blue, yellow, or green. Her results are shown below.

   a. Find the total number of trials.
   b. Find the experimental probability of drawing each color.

<table>
<thead>
<tr>
<th>Color of card</th>
<th>Red</th>
<th>Blue</th>
<th>Yellow</th>
<th>Green</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Times Card Drawn</td>
<td>20</td>
<td>10</td>
<td>6</td>
<td>4</td>
</tr>
</tbody>
</table>

   c. Based on her experiment, which color is most likely to appear on her next turn?
   d. Based on her experiment, do you think there are the same number of cards with each of the given colors in the deck? Explain why or why not.
Lesson 18T ~ Theoretical Probability

Find each probability for one roll of a number cube. Write each answer as a fraction in simplest form. *(There are ____ numbers on a number cube.)*

1. P(2)  
2. P(4 or 5)  
3. P(even number)  
4. P(7)

Each letter from the word SPINNER is written on a separate card. A card is chosen at random. Find the probability of each event. Write each answer as a fraction in simplest form. *(There are _____ letters in the word SPINNER.)*

5. P(S)  
6. P(N)  
7. P(vowel)  
8. P(consonant)

You play a game with 10 cards numbered 1 through 10. The cards are shuffled and one is picked at random from the complete deck. Find the probability of each event as a fraction in simplest form.

9. P(3)  
10. P(even number)  
11. P(more than 5)  
12. P(0)

Use the spinner to find each probability. Write each probability as a fraction, a decimal and a percent.

13. P(5)  
14. P(odd number)  
15. P(1 or 4)  
16. P(9)

17. Draw a spinner so that a person has a 50% chance of landing on blue.

18. The probability of landing on the pink region of a spinner is \( \frac{4}{7} \). Find P(not pink).

19. In a drawer, 5 of 9 socks are black. A sock is chosen at random. Find P(not black).
Lesson 19T ~ Geometric Probability

1. Nicole painted 20 feet of railing. She still has 30 feet of railing left to paint. Calvin didn’t realize some of the railing had been painted and leaned against it. Find the probability that he leaned against the freshly painted part of the railing.

   Total length of railing: __________  Length of railing painted: _________

   Probability of leaning on the painted part out of the entire length of railing:

Use each figure below to find each geometric probability.

2. a. Find the area of the shaded rectangle.
   
   \[ \text{Area} = \text{length} \times \text{width} \]

b. Find the area of the large rectangle.

c. Find the geometric probability that a dart landing on the large rectangle will land in the shaded part.

d. Find the probability that the dart will not land in the shaded part.

3. a. Find the area of the shaded triangle.
   
   \[ \text{Area} = \frac{1}{2} \times \text{base} \times \text{height} \]

b. Find the area of the square.

c. Find the geometric probability that a dart landing on the square will land in the shaded part.

d. Find the probability that the dart will not land in the shaded part.
4. a. Find the area of the shaded triangle.

c. Find the geometric probability that a dart landing on the large rectangle will land in the shaded part.

d. Find the probability that the dart will not land in the shaded part.

5. a. Find the area of the shaded square.

c. Find the geometric probability that a dart landing on the large triangle will land in the shaded part.

d. Find the probability that the dart will not land in the shaded part.