

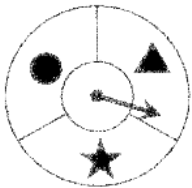
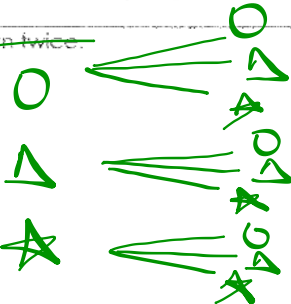
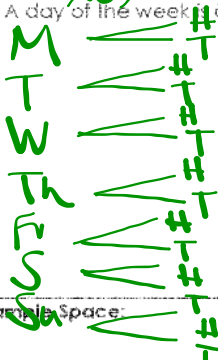
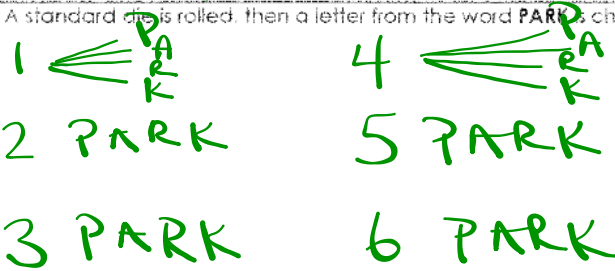
Why Did the Teacher Jump in the Pool?


Directions: Find each probability. After completing each set, find matching answers between Column 1 and Column 2. One will have a letter and the other a number. Write the letter in the matching numbered box at the bottom of the page.


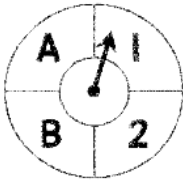
		COLUMN 1		COLUMN 2			
SET 1	<p>The spinner below is spun once.</p>	T	$P(\text{even})$	$\frac{1}{2}$	9	$P(\text{unshaded})$	$\frac{5}{8}$
		E	$P(\text{at least } 7)$	$\frac{5}{8}$	7	$P(10 \text{ or a multiple of } 3)$	$\frac{3}{8}$
		T	$P(\text{prime})$	$\frac{3}{8}$	2	$P(\text{shaded and at most } 4)$	$\frac{1}{8}$
		O	$P(\text{multiple of } 5 \text{ and odd})$	$\frac{1}{8}$	12	$P(\text{less than } 9)$	$\frac{1}{2}$
SET 2	<p>The set of cards below has 3 background styles (solid, stripes, and checkered) and 3 shapes (stars, squares, and triangles). One card is chosen at random.</p>	W	$P(\text{stripes})$	$\frac{1}{4}$	6	$P(\text{a triangle})$	$\frac{1}{6}$
		T	$P(\text{a star})$	$\frac{1}{2}$	10	$P(\text{solid and a star})$	$\frac{1}{4}$
		R	$P(\text{solid or checkered})$	$\frac{3}{4}$	1	$P(\text{a square or a triangle})$	$\frac{1}{2}$
		T	$P(\text{checkered and a square})$	$\frac{1}{6}$	4	$P(\text{stripes and a star})$	$\frac{1}{12}$
SET 3	<p>There are 2 blue, 6 yellow, 10 red, and 3 green, 5 orange, and 4 purple marbles in a jar. One marble is chosen at random.</p>	S	$P(\text{red})$	$\frac{1}{3}$	11	$P(\text{orange})$	$\frac{1}{6}$
		E	$P(\text{red, yellow, or purple})$	$\frac{2}{3}$	3	$P(\text{yellow})$	$\frac{1}{5}$
		A	$P(\text{green or blue})$	$\frac{1}{6}$	13	$P(\text{not red})$	$\frac{2}{3}$
		H	$P(\text{orange, purple, or yellow})$	$\frac{1}{2}$	5	$P(\text{purple or yellow})$	$\frac{1}{3}$
		T	$P(\text{blue or purple})$	$\frac{1}{5}$	8	$P(\text{blue, red, green})$	$\frac{1}{2}$

ANSWER:

1	2	3	4	5	6	7	8	9	10	11	12	13	14
T	O	T	E	S	T	T	H	E	W	A	T	E	R

Name:		Date:	
Topic:		Class:	
<h1>TREE DIAGRAMS</h1>	<p>In many cases, there is more than one event, which results in several outcomes. Tree diagrams are a useful tool in organizing and listing all possible outcomes.</p> <p>Draw a tree diagram, then list the sample space and determine the number of outcomes.</p>		
	<p>1. The spinner below is spun twice:</p>		
			
			
<p>Sample Space:</p>		<p># of Outcomes</p>	
<p>OO, OΔ, O☆, ΔO, ΔΔ, Δ☆, ☆O, ☆Δ, ☆☆</p>		<p>9</p>	
<p>2. A day of the week is chosen, then a coin is tossed.</p>			
			
<p>Sample Space:</p>		<p># of Outcomes</p>	
<p>MH, MT, TH, TT, WH, WT, FH, FT, SuH, SuT</p>		<p>14</p>	
<p>3. A standard die is rolled, then a letter from the word PARK is chosen at random.</p>			
			
<p>Sample Space:</p>		<p># of Outcomes</p>	
<p>1P, 1A, 1R, 1K, ...</p>		<p>24</p>	

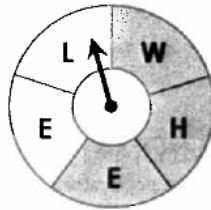
	<p>4. A smoothie shop has smoothies in two sizes (regular and large), and five flavors (strawberry, watermelon, banana, orange, and pineapple).</p>		
	Sample Space:	# of Outcomes	
<p>Fundamental Counting Principle</p> 	<p>You can use the counting principle to find the total number of outcomes: If one activity can occur in <u>3</u> ways and another activity can occur in <u>2</u> ways, then both activities can occur in $3(2) = 6$ ways.</p>		
	Example	# of Outcomes	
	<p>5. A standard die is rolled twice. Find the total number of outcomes.</p>	<p>6×6</p>	<p>36</p>
	<p>6. The spinner to the left is spun once, then a day of the week is chosen at random. Find the total number of outcomes.</p>	<p>8×7</p>	<p>56</p>
	<p>7. How many ways can someone order cotton candy if it comes in three sizes (small, medium, and large) and four flavors (bubble gum, raspberry, cherry, and strawberry).</p>	<p>3×4</p>	<p>12</p>
	<p>8. A month of the year and a letter from the word BINGO is chosen at random. How many outcomes are possible?</p>		<p>60</p>
	<p>9. A letter of the alphabet and a digit from 0-9 are chosen at random. How many outcomes are possible?</p>		<p>260</p>
	<p>10. Kayla is shopping on the second floor of the mall. If there are 4 escalators to the first floor and 8 exits, how many ways can she leave the mall?</p>		
	<p>11. How many ways can Hillary guess on the last three multiple choice questions on her science test if they each have four options?</p>		
	<p>R. 10. Braden has three pairs of jeans. He has five times as many t-shirts as jeans. How many outfits can he make consisting of one pair of jeans and one t-shirt?</p>		

Name:		Date:
Topic:		Class:
Main Ideas/Questions	Notes/Examples	
COMPOUND EVENTS	The probability of two or more simple events. Example: Rolling a die and flipping a coin	
COMPOUND PROBABILITY	Compound probability is the probability of a compound event. As with a single event, the probability of a compound event is the ratio of the number of favorable outcomes to the total number of outcomes.	
METHOD 1: Using Tree Diagrams 	Draw a tree diagram and list the sample space to find each probability.	
	1. A standard die is rolled then a coin is tossed.	a) $P(\text{heads}) = \frac{1}{2}$ b) $P(\text{even number}) = \frac{1}{2}$ c) $P(\text{odd number then tails}) = \frac{3}{12} \left(\frac{1}{4} \right)$ d) $P(\text{at least 5 then heads}) = \frac{2}{12} \left(\frac{1}{6} \right)$ e) $P(5 \text{ or tails}) = \frac{7}{12}$
2. The spinner to the left is spun twice.	a) $P(\text{letter both times})$ b) $P(\text{at least one B})$ c) $P(\text{A then 2})$ d) $P(\text{not spinning A})$ e) $P(2 \text{ both times})$	Sample Space: 1H, 1T, 2H, 2T, 3H, 3T, 4H, 4T, 5H, 5T, 6H, 6T
	Sample Space:	

METHOD 2:
Multiplying Probabilities

The probability of two independent events can be found by **multiplying** the probability of the first event by the probability of the second event.

3. The spinner below is spun twice. Find each probability.



a) $P(W \text{ both times})$

$$\frac{1}{5} \times \frac{1}{5} = \frac{1}{25}$$

b) $P(E, \text{ then a shaded region})$

$$\frac{2}{5} \times \frac{3}{5} = \frac{6}{25}$$

c) $P(\text{unshaded region both times})$

$$\frac{2}{5} \times \frac{2}{5} = \frac{4}{25}$$

4. There are 4 red, 8 blue, 2 green, and 6 yellow paperclips in a jar. A paperclip is drawn, replaced, then another paperclip is drawn. Find each probability.

a) $P(\text{green, then blue})$

$$\frac{2}{20} \times \frac{8}{20} = \frac{1}{10} \times \frac{2}{5} = \frac{1}{25}$$

b) $P(\text{neither is red})$

$$\frac{16}{20} \times \frac{16}{20} = \frac{4}{5} \times \frac{4}{5} = \frac{16}{25}$$

c) $P(\text{both yellow})$

$$\frac{6}{20} \times \frac{6}{20} = \frac{9}{100}$$

5. A number from 1-12 then a letter in the word **KANGAROO** is chosen at random.

a) $P(\text{even, then R})$

b) $P(\text{less than 9, then a vowel})$

c) $P(\text{prime number, then not K})$

6. A piggy bank contains 15 pennies, 5 nickels, 18 dimes, and 12 quarters. A coin is chosen a random, replaced, then another is chosen. Find each probability.

a) $P(\text{both dimes})$

b) $P(\text{a penny, then a quarter})$

c) $P(\text{both coins worth at least } 5\text{¢})$

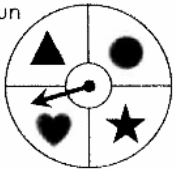
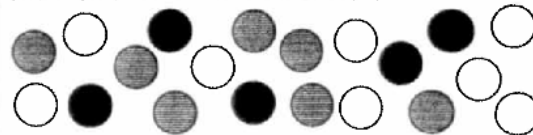
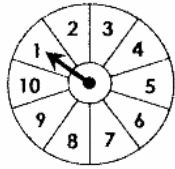
Quiz

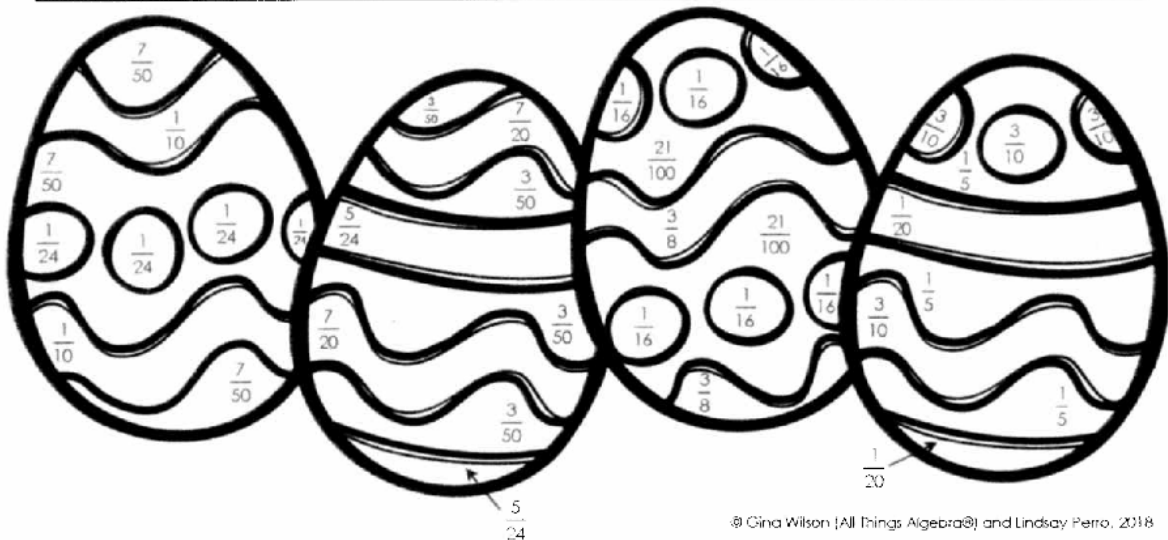
Start Homework

homework

Compound Probability

Directions: Find each probability. Identify your answer on the picture below and color accordingly.

For questions 1-3: The spinner is spun once and a standard die is rolled.		For questions 4-6: A marble is chosen, replaced, and then another marble is chosen.	
			
1. $P(\text{circle, then } 4)$	BLUE	4. $P(\text{black, then another black})$	YELLOW
2. $P(\text{not a star, then even})$	RED	5. $P(\text{not white, then stripes})$	ORANGE
3. $P(\text{heart, then at least } 2)$	GREEN	6. $P(\text{stripes, then white})$	PINK
For questions 7-9: A letter is chosen from the word OCEAN and a coin is flipped.		For questions 10-12: The spinner is spun twice.	
			
7. $P(C, \text{ then heads})$	PURPLE	10. $P(4, \text{ then even})$	YELLOW
8. $P(\text{vowel, then tails})$	PINK	11. $P(\text{odd, then at least } 4)$	BLUE
9. $P(\text{consonant, then heads})$	GREEN	12. $P(\text{less than } 7, \text{ then } 9)$	PURPLE



© Gina Wilson (All Things Algebra®) and Lindsay Perro, 2018