

## *Trigonometry/Statistics Review*

*On the reverse side of this page are notes that will help you with #3-7 on the Counting and Probability Review.*

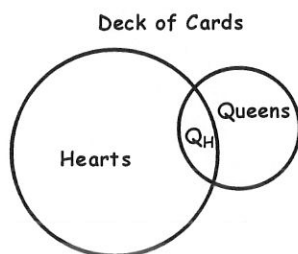
- ❖ Do NOT leave those or any problems blank.*
- ❖ I want to see effort. Effort is not demonstrated by a blank space.*
- ❖ It is okay to make mistakes on homework, as long as you learn from them.*
- ❖ We will go over the notes/questions when I return.*

*This packet will serve as a good review for the test, but it does not focus on the Pythagorean Theorem ( $a^2 + b^2 = c^2$ ,  $c$  being the hypotenuse or side opposite the right angle) or Special Triangles (30-60-90 or 45-45-90). Refer to your notes to study/practice those types of problems before the test. ☺*

## Probability of Multiple Events $P(A)$ & $P(B)$

### A. Definitions

1. Independent Events -  $P(A)$  and  $P(B)$  do not affect each other.  
Example: Tossing a coin twice (the 1<sup>st</sup> toss does not affect the 2<sup>nd</sup>)
2. Dependent Events - The first event affects the chances of the second.  
Example: Pulling names out of a hat without replacing them
3. Mutually Exclusive Events - 2 events that cannot happen at the same time.  
Example: Rolling a die and getting a "2" and a "6"
4. Not Mutually Exclusive Events - Events that can happen at the same time.  
Example: Pulling a queen and getting hearts



### B. Formulas (In math, "or" indicates +, and "and" indicates $\times$ .)

1.  $P(A \text{ and } B) = P(A) \cdot P(B)$   
Example: What is the probability of rolling a die and getting a 6 and then a 1?

$$\frac{1}{6} \cdot \frac{1}{6} = \frac{1}{36}$$

2. Mutually Exclusive Events

$$P(A \text{ or } B) = P(A) + P(B)$$

Example: What is the probability of rolling a 3 or an even number?

$$\frac{1}{6} + \frac{3}{6} = \frac{2}{3}$$

3. Not Mutually Exclusive

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$

Example: What is the probability of rolling a 3 or an odd number:

$$\frac{1}{6} + \frac{3}{6} - \frac{1}{6} = \frac{1}{2}$$

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

**Does the problem involve permutations or combinations? Do not solve.**

- 1) From 10 names on a ballot, a committee of 3 will be elected to attend a political national convention. How many different committees are possible? 1) \_\_\_\_\_
- 2) The matching section of an exam has 4 questions and 7 possible answers. In how many different ways can a student answer the 4 questions, if none of the answer choices can be repeated? 2) \_\_\_\_\_

**Find the probability.**

- 3) Give the probability that the roll of a die will show 5 or 3. 3) \_\_\_\_\_
- 4) Urn A has balls numbered 1 through 7. Urn B has balls numbered 1 through 3. What is the probability that a 4 is drawn from A followed by a 2 from B? 4) \_\_\_\_\_
- 5) A game spinner has regions that are numbered 1 through 9. If the spinner is used twice, what is the probability that the first number is a 3 and the second is a 5? 5) \_\_\_\_\_
- 6) A card is drawn from a deck of 52 cards. What is the probability that it is a 2 or a diamond? 6) \_\_\_\_\_
- 7) A bag contains 3 red marbles, 5 blue marbles, and 6 green marbles. What is the probability of choosing a blue marble when one marble is drawn? 7) \_\_\_\_\_

**Solve the problem.**

- 8) Lisa has 4 skirts, 8 blouses, and 4 jackets. How many 3-piece outfits can she put together assuming any piece goes with any other? 8) \_\_\_\_\_
- 9) A hamburger shop sells hamburgers with cheese, relish, lettuce, tomato, onion, mustard, or ketchup. How many different hamburgers can be concocted using any 5 of the extras? 9) \_\_\_\_\_

- 10) In how many ways can Susan arrange 10 books into 3 slots on her bookshelf? 10) \_\_\_\_\_
- 11) In how many ways can 6 volunteers be assigned to 6 booths for a charity bazaar? 11) \_\_\_\_\_
- 12) In how many ways can 7 players be assigned to 7 positions on a baseball team, assuming that any player can play any position? 12) \_\_\_\_\_
- 13) A restaurant offers a choice of 4 salads, 9 main courses, and 4 desserts. How many possible 3-course meals are there? 13) \_\_\_\_\_
- 14) Measurements of the height of a group of men entering a particular college produced the following table. What is the probability that a man entering the college is 68–69 inches tall? 14) \_\_\_\_\_

Height (inches)	60–61	62–63	64–65	66–67	68–69	70–71	72–73	74–75	76+
Number	2	12	90	241	257	194	88	36	6

- 15) Ron finds 8 books at a bookstore that he would like to buy, but he can afford only 5 of them. In how many ways can he make his selection? How many ways can he make his selection if he decides that one of the books is a must? 15) \_\_\_\_\_
- 16) Each day, at a 3 day basketball camp, there are 2 choices for lunch. How many possibilities are there for lunch, considering all 3 days? 16) \_\_\_\_\_

**Solve the problem.**

- 17) How many 3-letter codes can be formed using the letters A, B, C, D, and E? No letter can be used more than once. 17) \_\_\_\_\_

Use the formula for  ${}_nP_r$  to evaluate the expression.

- 18)  $7P_3$  18) \_\_\_\_\_

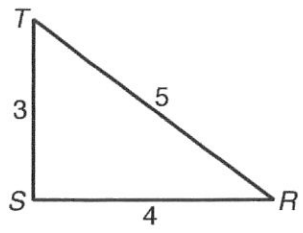
Use the formula for  ${}_nC_r$  to evaluate the expression.

- 19)  $8C_3$  19) \_\_\_\_\_

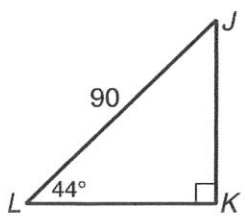
### Trigonometry Review

#### Short Answer

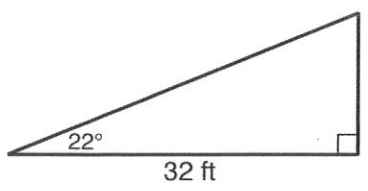
1. Write  $\sin R$  as a decimal.



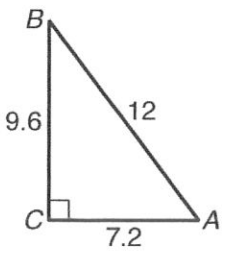
2. Find the area of triangle.



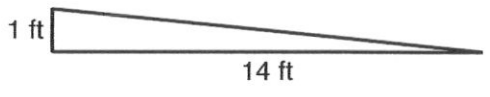
3. A skateboard ramp makes a  $22^\circ$  angle with the ground. To the nearest foot, how high is the ramp?



4. Which angle of  $\triangle ABC$  has a sine of 0.8?



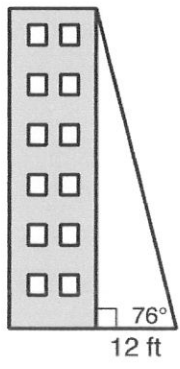
5. A wheelchair ramp has a rise from the ground of 1 foot. The ramp has a length of 14 feet. To the nearest degree, find the angle the ramp makes with the sidewalk. (The figure is not drawn to scale.)



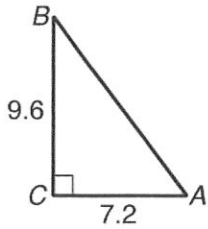
6. When the angle of elevation of the sun is  $63^\circ$ , a tree casts a shadow that is 27 feet long. To the nearest foot, how tall is the tree?



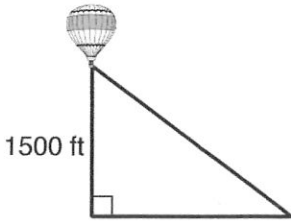
7. From a point on the ground 12 feet in front of the building, the angle of elevation to the top of the building is  $76^\circ$ . How tall is the building? Round the answer to the nearest foot.



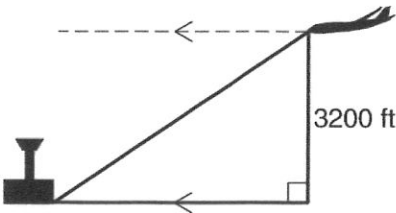
8. a. To the nearest degree what is  $m\angle A$ ?  
 b. What is the perimeter of the triangle?



9. The angle of elevation from a person lying on the ground to a hot-air balloon is  $37^\circ$ . The balloon is at an altitude of 1500 feet. To the nearest foot, find the horizontal distance from the person to a point on the ground directly below the balloon.

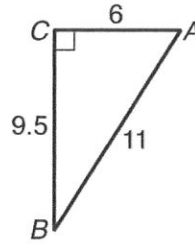


10. The angle of depression from a plane to the airport is  $34^\circ$ . The pilot reports that the plane's altitude is 3200 feet. Find the horizontal distance between the plane and the airport to the nearest foot.



11. The length of a slide at a water park is 50 feet from the top of the slide to ground level. The top of the slide is 20 feet above the ground. What is the approximate measure of the angle formed by the top of the slide and the vertical support to the ground? Round to the nearest degree.

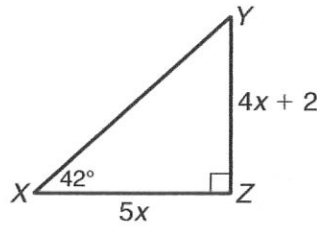
12. Determine the value of  $\cos B$  to the nearest hundredth.



13. Complete the chart.

	$30^\circ$	$45^\circ$	$60^\circ$
sin			
cos			
tan			

14. Find  $YZ$ . Round to the nearest unit.



15. Find  $m\angle D$  to the nearest degree.

