Study Guide for HEP Math and Reading Pre-Test

Operations you should know how to do....
1. Fractions
   a. Adding
   b. Subtracting
   c. Multiplying
   d. Dividing
2. Percentages
   a. Adding a percent
   b. Subtracting a percent
   c. Finding a percent of a specific amount
3. Area
   a. Calculate the area of a square
   b. Calculate the area of a circle
4. Formula
   a. Know how to read and use a given formula
5. Triangle
   a. Know how to calculate its angles

Information you should have a good understanding of...
1. Graphs (how to interpret and use)
   a. What a scatter plot is
   b. What a table and chart are
   c. What a line graph is
2. What a coordinate plane is and how to use it
   a. Learn to locate a specific point on a coordinate plane

Vocabulary that you should understand
1. Mean
2. Median
3. Radius
4. Area
5. Vertices
6. Angles
7. Rate
8. Proportion

For the reading portion of this pre-test it is important to know that reading comprehension is key, therefore the best way to study is to read as much as you can to improve your speed as well as your comprehension. Page 4 provides an example of what the reading pre-test looks like.
Sample problems:

**Answer problems 1-7** with the following information:

At the end of the year all of the HEP classes plan a gathering, the total number of students enrolled is 95, but only 80% will show, plus 3 instructors and 3 instructional aides. You agree to bring dessert for the gathering; however you must choose between cookies or cake. You go to the store and find a 9x13” cake for $15.99, and you calculate that a 9x13” cake will feed approximately 20 people, but you can get 12 cookies for $4.99.

1. How many students will show?
   a. 19
   b. 76
   c. 95
   d. 171

2. What is the total amount of people attending?
   a. 22
   b. 58
   c. 82
   d. 101

3. How many cakes are needed to serve the people that are attending without any left overs?
   a. 2
   b. 3
   c. 4
   d. 5

4. How many cookie boxes will I need if I estimate everyone will get 2 cookies?
   a. 7
   b. 14
   c. 28
   d. 42

5. How much will I spend on the cake?
   a. $31.98
   b. $47.97
   c. $63.96
   d. $79.95

6. How much will I spend on cookies?
   a. $34.93
   b. $63.96
   c. $69.86
   d. $70.23

7. What is the difference in price between the two options?
   a. $5.00
   b. $5.90
   c. $6.00
   d. $6.90

**Fractions**

8. \( \frac{1}{8} + \frac{2}{4} \)

9. \( \frac{5}{9} - \frac{1}{5} \)

10. \( \frac{4}{5} ÷ 2 \)
Additional word problems

11. You need to purchase 2 school books for your HEP class. When you go to the student book store you see that the books are on sale for 20% off. If each book cost $30, how much will you pay for the books with the discount plus a 7.50% tax charge?
   a. $48.00
   b. $51.60
   c. $64.50
   d. $77.40

Use the following information for questions 12-14

My neighbor built a patio that measures 50 feet long by 20 feet wide. He asked me to build him a circular pool on the far right of the patio with an area of 314 square feet. (Hint: Volume = area of base times height)

12. What is the area of the patio?
   a. 100
   b. 1000
   c. 10000

13. What will be the diameter of the pool?
   a. 10
   b. 20
   c. 50

14. If the pool is 5 feet deep, what will its volume be?
   a. 1000 cubic feet
   b. 1570 cubic feet
   c. 1670 cubic feet

15. If angle A measures 38 degrees and angle B measures 120 degrees what is the measure of angle C?
   a. 22
   b. 38
   c. 40
   d. 50

Questions 16 and 17 refer to the following information

A small group of students were sent to take the official mathematics exam their scores were as follows: 8, 8, 9, 9, 12, 19, 8, 7, 4, 15.

16. Approximately what was the mean score?
   a. 9.0
   b. 9.5
   c. 10
   d. 10.5

17. What is the median score?
   a. 8.5
   b. 9.0
   c. 9.5
   d. 10.0
A soccer field is the setting in the untitled poem below, which was written by Ellen Bryant Voigt.

Muscular and fleet, he moves without thinking among the shifting jerseys on the field. In his wake the paler one, through wave after wave of the enemy line, presses the white ball forward: winded and earnest, he has willed his body to this pitch until the body is inside his mind as the mind arranges pieces on the board — now he cuts a wide angle and passes the ball though he knows his friend will never give it back. Ahead of him, always ahead of him: this is the pattern already set in their early victories, one at the prow, one at the wheel.


14. In line 1, the word “fleet” most nearly means
A tall.  
B swift.  
C strong.  
D awkward.

15. In line 3, the phrase “In his wake” means that “the paler one” is
A by his side.  
B calling to him.  
C close behind him.  
D making a final effort.

16. What is being described in lines 3–5?
A A soccer team trying to beat a much better team  
B A soccer player maneuvering the ball past opponents  
C Two friends competing in drills during soccer practice  
D A soccer player imagining what an opponent will do

17. The player described in lines 5–7 is apparently
A pushing himself to the limit.  
B playing carelessly, without thinking.  
C slowing down the action to figure out what to do.  
D too tired to be able to keep the ball under control.

18. Based on details in the poem, which of the following can be concluded about the soccer players?
A They are engaged in an unfriendly rivalry.  
B They are accustomed to playing together.  
C They are trying to work out a new formation.  
D They are not very involved in the game.

19. One of the poem’s main themes is
A the lack of team spirit exhibited by some players.  
B the idea that competitive sports turn friends into enemies.  
C the envy some players feel for the high-scoring players.  
D the unselfishness required to be a good team player.