Mrs. Bagley loves to do triathlons, where people swim, then ride a bike, then run as fast as they can. Short triathlons are called Sprints, and they can be completed in about an hour. Ironman Triathlons can take an entire day to complete – racers have to swim 2.4 miles, ride 112 miles on a bike, then run a full marathon (26.2 miles). Remember that to find distance traveled, we multiply speed by time. D = R*T

B represents the number of minutes biking	**V$_B$** is the average speed biking
S represents the number of minutes swimming	**V$_S$** is the average speed swimming
R represents the number of minutes running	**V$_R$** is the average speed running
T represents the total minutes for the race	

1. Write an expression using the symbols above that would represent the distance someone <u>runs</u> in a triathlon.

2. Write an expression for the distance in the <u>biking</u> portion of the race.

3. Write an expression that would represent the <u>total</u> distance of a triathlon.

4. Write an expression <u>without using B</u> to represent the number of minutes on the bike.

Give the meaning for each expression. If there is no meaning explain why.

5. S + B + R   **6.** V$_S$ + V$_B$ + V$_R$

7. SBR   **8.** V$_S$S

9. T-R   **10.** R- V$_B$

Evaluate the following expressions for $a = -3$, $b = 2$, $c = 5$, and $d = -4$.

11.   2a + 3b

12.   4c + d

13.   5ac − 2b

14. $\dfrac{2a}{c+d}$

15. $\dfrac{3b}{d}$

16. $\dfrac{a-4b}{3c+2d}$

Review Standard: Use unit rates and show your work to convert the problems below.

The Kentucky Derby is a horse race that is held annually in Louisville, Kentucky. Since 1946, the Kentucky Derby has been on the first Saturday in May. The first Kentucky Derby was held on May 17, 1875, making the Derby the longest running U.S. sporting event. Horse races are often measured in "furlongs." One furlong is equal to 1/8 mile. A fortnight is an old-fashioned word meaning two weeks, or 14 days.

17. The Kentucky Derby is run at Churchill Downs. The length of the race is 10 furlongs. How many miles is this?

18. The fastest Derby ever run was by Secretariat in 1973. This horse ran the 10 furlong race in 00:01:59.04, which is 1 minute, 59.4 seconds. Express his average speed in miles per hour (mph).

19. A fun unit of speed, commonly measured in miles per hour, is the furlong per fortnight. How many miles per hour is 1,000,000 furlongs per fortnight?

20. The speed limit on most major U.S. highways is 65 miles per hour. Express this speed in furlongs per fortnight.