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Unit 5 Word Problems

1. Cinderella is attending her favorite band's concert. Since she is a princess, she naturally arrives late for important events in order to draw attention to her arrival. After exiting her limo, she has to travel 1 mile to get to the front of the stage. The crowd is so strong that everyone is pushing her forward, accelerating her natural walking speed of 3 miles per hour. After reaching the stage, she quickly says hello to the band and then must return to her limo in order to be home before midnight. On her return, the crowd is slowing down her pace since they are still moving toward the stage. If her total walking time is 2 hours, what was the speed of the crowd?

2. Crush and his turtle friends are swimming along the East Australian Current. They travel 6 miles upstream (with the current) and 6 miles downstream. The current was moving at a rate of 10 mph. In still water, the turtles can travel at an average speed of *r* mph. Suppose the journey took 4 hours. How fast do the turtles swim in still water?

3. A unicorn spends its morning climbing among the clouds. It travels 3 miles up and 3 miles down the hill of clouds. On a clear sunny day with no wind, the unicorn can run at a speed of 2mph. However, on this day, the wind is blowing and affecting the unicorn's natural pace as she moves in the sky. The unicorn moves with the wind when she is moving down the clouds. If her adventure took 5 hours, how fast was the wind blowing that day?

4. In Toothless' epic battle against the fire-breathing Wildebeest, he was flying at a speed of 50 mph towards the fire and away from the fire for 5 miles each way. It took him a total time of 4 hours to fly away and then towards the fire. He was slower flying into the fire than when he was coming out of it. Find the speed of the fire.

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5. Solve each inequality.

a)
$$\frac{x-5}{x} > 2$$

d)
$$\frac{12}{x-4} \le 3$$

b)
$$\frac{x+3}{2x} < 2$$
 e) $\frac{4}{x+1} < 4$

c)
$$\frac{6}{x-3} > \frac{x}{4} + 5$$
 f) $\frac{3x}{x+2} - \frac{2}{x+4} \ge 7$