Name: Date:

1. Average speed = total distance ÷ total time. The total time traveled is $30 + 45 = 1.25$ hours. The total distance we need to calculate. The distance Dale traveled in the first part is 56 $mph \times .5$ $h = 28$ miles, and the distance she drove in the second part is 60 $mph \times .75$ $h =$ 45 miles. So her total distance is $45 + 28 = 73$. So her average speed is $73 \div 1.25 =$ $\boxed{58.4 \text{ mph}}$

2. $\boxed{6:55\text{p}}$

3. $\boxed{4 \text{ mph}}$

4. $\boxed{592 \text{ feet}}$

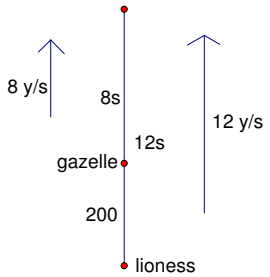
5. $\boxed{306 \text{ mi}}$

6. This is a meet problem similar to problem 3 on homework 14.1. For details, see that problem. I will just discuss this problem quickly. The time passed between 6:35 and 9:20 is 2.75 hours. The milk truck went a total of $68 \times 2.75 = 187$ km and the wheat truck went $76 \times 2.75 = 209$ km. They overlap 36 km, so the distance between towns is $187 + 209 - 36 =$ $\boxed{360 \text{ km}}$

7. First, let's find out how far Mitchell has gone between 2:30 and 3:15. There are 45 minutes in this time period, so he has traveled for .75 hours. This means he has gone a distance of $80 \times .75 = 60$ km. So now let's consider a new starting point. Instead of starting at town A, let's start 60 km from town A, so the distance between the two points is $535 - 60 = 475$. Now we have a simple meet problem. They will travel 475 km, and their combined speed is $80 + 110 = 190$ km/h. They travel for $475 \div 190 = 2.5$ hours, and 2.5 hours after 3:15 is $\boxed{5:45 \text{ pm}}$

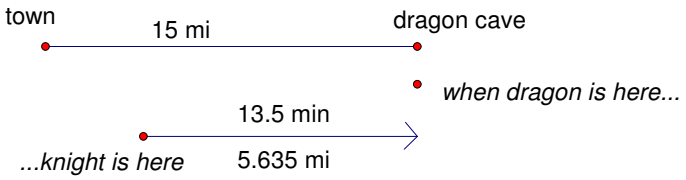
8. $\boxed{2:20\text{pm}, 5:20\text{pm}}$

9. This is a chase problem. Let's say the lioness and gazelle run for s seconds. Then the gazelle runs a distance of $8s$ yards (because $D = RT$, and her rate is 8 and the time is s), and the lioness ran $12s$ yards. Look at the diagram below.



The distance the lioness runs is 200 + the distance the gazelle runs. So we can set up an equation, since the two distances are equal. We have $8s + 200 = 12s$. Subtracting $8s$ from both sides, we get $200 = 4s$, so $s = 50$. So the lioness chased the gazelle for 50 seconds. So how far did she have to travel? $12 \times 50 =$ $\boxed{600 \text{ yards}}$

10. First let's draw a diagram.



First thing we can do is find out Knight Jason's speed. He traveled 5.635 miles in 13.5 minutes, so first let's convert minutes into hours: $13.5mins \times \frac{1hr}{60min} = \frac{9}{40}$ of an hour. So Jason's speed is $5.635 \div \frac{9}{40} = 5.635 \times \frac{40}{9} = \frac{1127}{45}$. So know we know that in the time it takes Jason to go the first $15 - 13.5 = 1.5$ miles, the dragon Ankur can fly the whole 15 miles. So we see how long it takes Jason to go 1.5 miles: $t = 1.5 \div \frac{1127}{45} = 1.5 \times \frac{45}{1127} = \frac{135}{2254}$ hours. So Ankur's speed is $15 \div \frac{135}{2254} = 15 \times \frac{2254}{135} = 250.\overline{4}$. Answer key was incorrect.