2.   Answer: 15 miles per hour.   This one can be done using a time number line by breaking up the two hour trip into thirds.

3.   Answer: 10 mph.

I used the guess-check-generalize method on this one as follows:

Step 1: Guess: 20 mph

         First part of trip: 10 miles @ 20 mph gives a time of $\dfrac{10}{20}$ = ½ hr

         Second part of trip: 24 miles @ 34 mph gives a time of $\dfrac{24}{34} = \dfrac{12}{17}$ hr

Step 2: Check

         The time on the first part of trip must equal time on second pat of trip but

$$\frac{1}{2}hr \neq \frac{12}{17}hr$$

Step 3: Generalize: Let x be the original speed.

Then:

         First part of trip: 10 miles @ x mph gives a time of $\dfrac{10}{x}$ hours

         Second part of trip: 24 miles@ (x+14) mph gives a time of $\dfrac{24}{x+14}$ hours

         The fact that the time on the first part of the trip must equal the time on the second part of the trip yield the equation:

$$\frac{10}{x} = \frac{24}{x+14}$$

4.   48 mph

5. Answer: 20 mph

I used a table on this one:

	Distance	Rate	Time
Bill (Moped)	50	x - 10	$\dfrac{50}{x-10}$
Ted (Vespa)	60	x	$\dfrac{60}{x}$

Use the fact that "Ted travels 60 miles in two hours less time than it takes Bill to travel 50 miles" to set up an equation.

6. x = -1/2