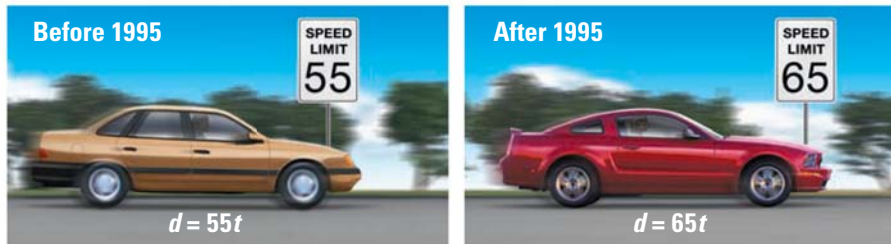


41. **SPEED LIMITS** In 1995 Pennsylvania changed its maximum speed limit on rural interstate highways, as shown below. The diagram also shows the distance d (in miles) a person could travel driving at the maximum speed limit for t hours both before and after 1995.



- Graph both equations in the same coordinate plane.
- Use the graphs to find the difference of the distances a person could drive in 3 hours before and after the speed limit was changed.

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42. **TAKS REASONING** A service station charges \$40 per hour for labor plus the cost of parts to repair a car. Parts can either be ordered from the car dealership for \$250 or from a warehouse for \$200. The equations below give the total repair cost C (in dollars) for a repair that takes t hours using parts from the dealership or from the warehouse.

Dealership: $C = 40t + 250$ **Warehouse:** $C = 40t + 200$

- Graph both equations in the same coordinate plane.
 - Use the graphs to find the difference of the costs if the repair takes 3 hours. What if the repair takes 4 hours? What do you notice about the differences of the costs? *Explain.*
43. **FACTORY SHIFTS** Welders at a factory can work one of two shifts. Welders on the first shift earn \$12 per hour while workers on the second shift earn \$14 per hour. The total amount a (in dollars) a first-shift worker earns is given by $a = 12t$ where t is the time (in hours) worked. The total amount a second-shift worker earns is given by $a = 14t$.
- Graph both equations in the same coordinate plane. What do the slopes and the a -intercepts of the graphs mean in this situation?
 - How much more money does a welder earn for a 40 hour week if he or she works the second shift rather than the first shift?
44. **TAKS REASONING** An artist is renting a booth at an art show. A small booth costs \$350 to rent. The artist plans to sell framed pictures for \$50 each. The profit P (in dollars) the artist makes after selling p pictures is given by $P = 50p - 350$.
- Graph the equation.
 - If the artist decides to rent a larger booth for \$500, the profit is given by $P = 50p - 500$. Graph this equation on the same coordinate plane you used in part (a).
 - The artist can display 80 pictures in the small booth and 120 in the larger booth. If the artist is able to sell all of the pictures, which booth should the artist rent? *Explain.*