

### Math 141 Related rates

1. A man 6 ft. tall is walking away from a 40 ft. tall light. If the man walks at 3 ft/sec, how fast is the man's shadow growing when he is 30 ft. from the pole? How fast is the tip of the shadow moving along the ground at this time?
2. The incredible shrinking man is walking away from a 40 ft. tall light. His height is decreasing at .01 ft per second. If he walks at 2 ft/sec, how fast is his shadow growing when he is 30 ft. from the pole and 4 ft tall?
3. Two cars are heading toward the Clinch and 17th Street intersection. Car A is heading North on 17th at 35 mph. Car B is heading east on Clinch at 20 mph. how fast is the distance between them changing when car A is 30 ft and car B is 40 from the intersection?
4. Book #21 Two carts are connected by a rope 39 ft. long that passes over a pulley P (See the diagram.) The point Q is 12 feet directly under P. Car A is being pulled away from Q at 2 ft/sec How fast is B moving toward Q when A is 5 ft. from Q?