1. Which is faster: 100 miles/hour or 150 feet/second?

2. Solve this equation for $t$: $4 = \sqrt{(t - 1)^2 + (t + 1)^2}$

3. Erik’s disabled sailboat is floating at a stationary location 3 miles East and 2 mile North of Kingston. A ferry leaves Kingston heading due East toward Edmonds at 12 mph. At the same time, Erik leaves the sailboat in a dinghy heading due South 10 ft/sec (hoping to intercept the ferry). Edmonds is 6 miles due East of Kingston.

   (a) Compute Erik’s speed in mph and Ferry speed in ft/sec.

   (b) Impose a coordinate system with Ballard the origin. Insert into the picture the locations of the ferry and Erik after 7 minutes and their coordinates. Find the distance between Erik and the ferry at this instant.

   (c) Explain why Erik misses the ferry.

   (d) After 10 minutes, a Coast Guard boat leaves Kingston heading due East at a speed of 25 ft/sec. Will the Coast Guard boat catch the ferry before it reaches Edmonds? Explain.
4. The next day, Erik’s disabled sailboat is still floating stationary 3 miles East and 2 mile North of Kingston. A Ferry leaves Kingston heading toward Edmonds at 12 mph. After 20 minutes the ferry turns heading due South. Ballard is 8 miles South and 1 mile West of Edmonds. Impose coordinates with Ballard the origin. Edmonds is 6 miles due East of Kingston.

(a) Find the equations for the lines along which the ferry is moving and draw in these lines.

(b) Find the coordinates where the ferry turns to head south, mark this location and compute the distance from the ferry to the sailboat at this instant.

(c) Find the coordinates of the ferry 25 minutes after leaving Kingston, mark this location and compute the distance from the ferry to the sailboat at this instant.