1. Marina rows across a river of molten lava 20.0 m wide flowing with a velocity of 6.00 m/s. The only safe spot on the far shore is directly across from her. If she can row at a rate of 8.50 m/s, at what angle must she aim her boat in order to make it to safety? How fast is she moving toward the far shore? How long does it take her to get there? (Obviously, she thought ahead and bought heat resistant nichrome-steel alloy oars so she can row. Unfortunately, she forgot to get a boat of the same material…)

2. Marina is running due north at 5.00 m/s. An angry linebacker crashes into her at a speed of 7.75 m/s at an angle of 35.0o south of west. What is Marina's resultant velocity after the collision?

3. Vector A = 25.0 N at 30.0 o north of east. Vector B = 18.0 m at 45.0 o south of east. In order to save Marina's life from an evil supervillain, you need to find the value of A·B, AxB, and BxA.

4. A cannon launches Marina at a velocity of 100.0 m/s at an angle of 70.0 o. Find how far away she lands, the maximum height she reaches, and how long she is in the air.

5. Marina is launched from a spring. She reaches a maximum height of 12.0 m and lands 50.0 m away. What was her initial launch velocity and angle? What was her time of flight?