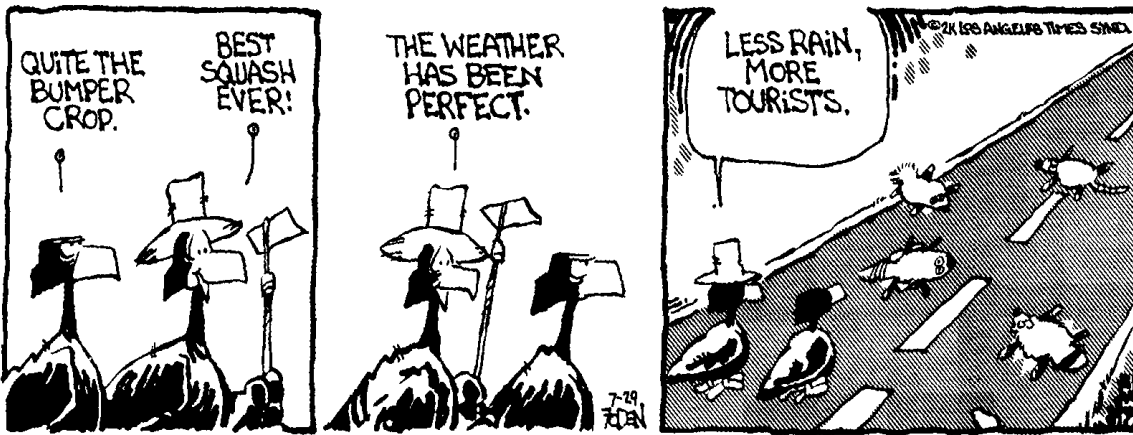


Blame \_\_\_\_\_

Per \_\_\_\_\_



*I don't want to get to the end of my life and find that I lived just the length of it. I want to have lived the width of it as well. -- Diane Ackerman*

1. A ball is thrown with an angle of  $12.0^\circ$  to the horizon with a speed of  $15.0$  m/s. What are its horizontal and vertical components?
  
2. A frog falls from its rainforest tree. If we ignore air resistance, (a) how much time does it take the frog to fall a distance of  $12.0$  m? (b) how fast is the frog falling at this point?
  
3. A cannon shoots a large cannonball. The cannonball has a speed of  $125$  m/s when it leaves the barrel. If the elevation angle was  $32.0^\circ$ , what is the horizontal distance that the cannonball travels?

4. A ball is thrown at some angle. The ball is in the air for 4.50 seconds before it hits. If it travels 45.0 meters before it hits the ground, what was the initial velocity of the ball (magnitude and direction)?
5. A crow flies aloft carrying a shiny rock in its beak. The crow reaches an altitude of 65.0 m and is flying at 34.5 km/h. It releases the rock. Find: (a) the time it will take the rock to hit the ground below, (b) the horizontal distance the rock will travel before it hits, and (c) the speed of the rock when it hits the ground.
6. A Sopwith Camel can fly with an airspeed of 87 mph. The wind is blowing to the south at 15 mph. If the airplane wants to fly directly east, what compass heading must it fly?