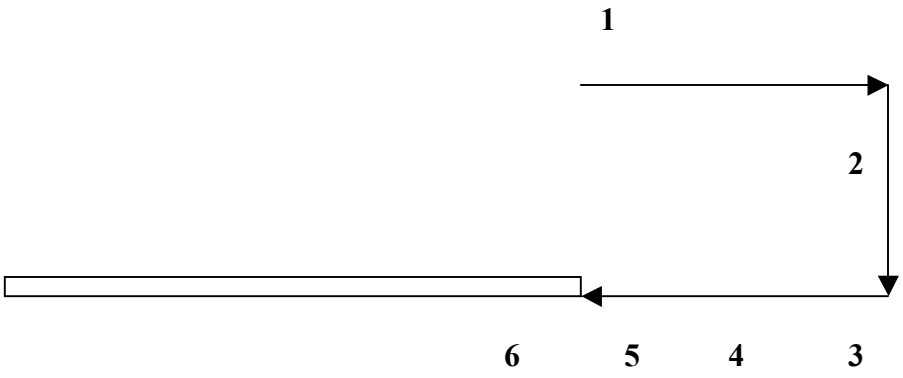
Short-Field Takeoffs: Depending on the type of flying you plan to do, sooner or later you will find a runway that is not 10,000 feet long and 200 feet wide. Not only will this runway be short, but it may be only as wide as the wingspan of your aircraft. The biggest problem now is the fact that you have to land on it, and then later, you will need to takeoff from it. In both cases, there will be an obstacle at the end of the runway. In order to clear this obstacle, both the rate of descent and the rate of climb must be increased above the normal requirements. We will start with the takeoff since the new aircraft you will buy after you are licensed is in Byron, California (runway: 1,500 ft long and 35 ft wide).

The purpose of a short-field takeoff is to get to maximum angle of climb speed, and then to climb at that speed. In a C-152, this speed is 60 KIAS. I will list the steps you will need to know in order to perform a short-field takeoff:

1. Taxi onto the runway: Remember to use all of the available runway, so line up on the centerline, as close to the end of the runway as you can.
2. Hold the brakes: If we roll, then we will be using the needed runway.
3. Bring throttle in and maintain maximum RPM.
4. Release the brakes: Begin the takeoff roll.
5. Accelerate to Vx.
6. Once you reach Vx, rotate the aircraft to the pitch attitude for Vx (Do not chase the airspeed indicator because you will never maintain the proper airspeed that way.).
7. If flaps are required for the aircraft you are using, pitch the aircraft to Vy and retract the flaps above 200 ft AGL.

Short-Field Landing: The purpose of a short-field landing is to land the aircraft with an obstacle at the end of the runway and stop the plane as quickly as possible. To do this, you will need to remember that the most important thing is a stable approach. Your descent should be at a steeper-than-normal angle. Use the following procedure:



1. Start descent abeam the numbers as normal. Your airspeed should be at 75KIAS. Add the first ten degrees of flaps.

2. Turn base a little bit sooner than usual. Maintain airspeed of 70 KIAS once on base. Add the next ten degrees of flaps.

3. When you turn final pitch, nose up to maintain airspeed of 60 KIAS. Adjust the power slightly so that you remain high on the glide slope if there is one.

4. On short final, add the last ten degrees of flaps and slow to 55 KIAS.

5. Once the obstacle is cleared, pull power off and let the plane pitch to maintain 55 KIAS.

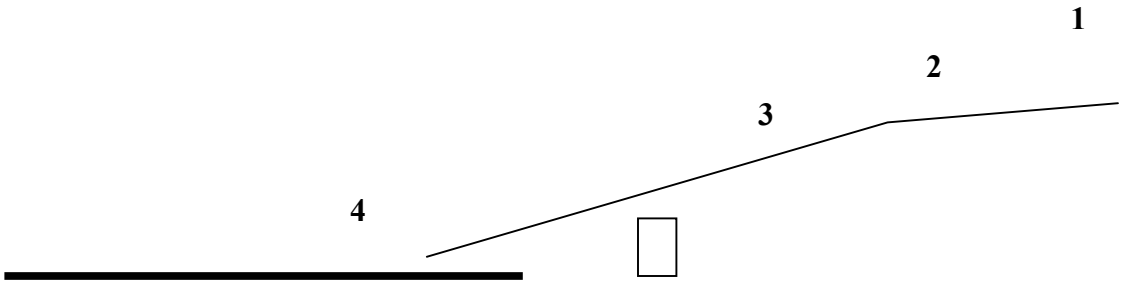
6. When the wheels touch the ground:

    a. Flaps Up

    b. Brakes: Apply

    c. Increase *backpressure*for aerodynamic braking

I have also made a side view of the short-field landing. Again, the key to a successful short-field landing is the final approach. If you are flying a C-152, pulling the power and doing a chop-and-drop will not be a problem. You should, however, get into the habit of flying the aircraft onto the runway because someday, you will be flying an aircraft that is much bigger and heavier than the C-152. Even the C-172/RG will drop out of the sky when you pull the power off quickly. On final, slowly and constantly bring back the power so that the power is off at the same time that the wheels touch the runway.



1. At this point, have an established final approach. In the C-152, the airspeed should be at 60 KIAS. Make sure you trim the aircraft for hands-off approach. By hands-off, I mean you only need to touch the control column very gently if at all. You should have 20 degrees of flaps at this point.
2. I will call this medium final. At this point, you should pitch up slightly in order to lose five knots (C-152). Once you have the airspeed established, trim the aircraft.
3. When the aircraft is near or over the obstacle, add the last ten degrees of flaps. Retrim the aircraft. Slowly reduce the power.
4. At the point of touchdown, the power should be off: flaps up, apply brakes, and add backpressure.

Finally, do not slam on the brakes. Like in a car, the maximum braking is at the point just before the wheels lock up. In addition, you might be liable for new tires if you put a flat spot in the tire. In addition, you do not have complete control of the aircraft if the wheels lock up.