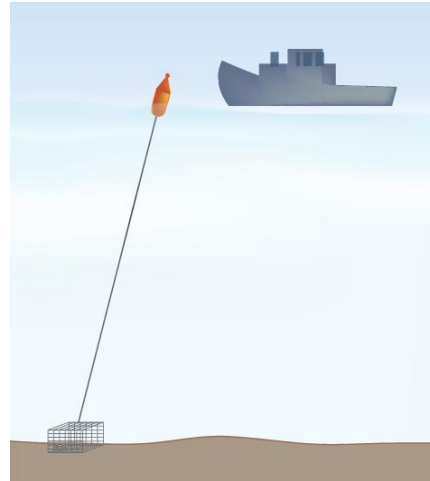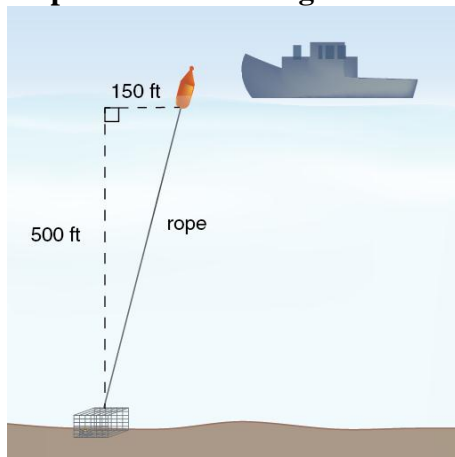## Indirect Measurement Practice

1. Sig, a king crab boat captain must determine how much rope to attach to his crab pot.  Ocean currents can push buoys up to 150 ft from the location directly above where a pot lies on the ocean floor. Using his sonar depth finder, Sig knows that he is dropping his pots to a depth of 500 ft where the king crab inhabit.



**Step 1:  Label the diagram.**



**Step 2:  Write a plan.**

*The minimum amount of rope needed is the hypotenuse of a right triangle created by the depth of the pot and the distance the buoy could travel.*

**Step 3:  Determine the value of *r*.**

$$a^2 + b^2 = r^2$$
$$500^2 + 150^2 = r^2$$
$$250\ 000 + 22\ 500 = r^2$$
$$272\ 500 = r^2$$
$$522\ ft = r$$

*The rope will need to be a minimum of 522 ft long*