Special Right Triangles
Worksheet

Name _____ Date _____

Procedure for Using the Transit to Measure Vertical Angles

1. Open the transit case so the mirror makes a 45° angle with the compass face.
2. Turn your body so the left side is toward the tree.
3. Hold transit case vertically, with front sight toward you and mirror to the left.
4. Line up object through front sight, tip of rear sight, and window below mirror.
5. Observe reflected image of clinometer needle and read angle on clinometer scale.
6. Move toward or away from tree until angle reads exactly 45° and stop.

I. Isosceles Right Triangle

- Distance from observer to base of hill = _____ m
- Distance from observer to top of hill = _____ m
- Height of hill = _____ m
- Angle of elevation = _____°
- Label angle of elevation on drawing.

II. 30°-60°-90° Right Triangle

- Height of hill = _____ m
- Distance from observer to dog = _____ m
- Distance from base of hill to dog = _____ m
- Angle of depression = _____°
- Label angle of depression on drawing.

III. Height of Tree

- Original angle = _____°
- Distance to tree at 45° angle = _____ m
- Height of tree* = _____ m

*If the tree is on a counter or workstation, and you held the transit even with the base of the tree, the height you calculate should be the tree height alone. It should not include the height of the workstation.