1.4 Right Triangle Word Problems
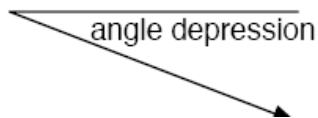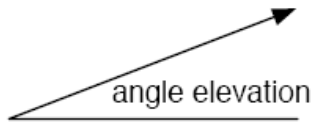
Notes
Steps to solving word problems:
1) Draw the picture.
2) Label all given information.
3) Identify what you are solving for.
4) Set up the equation.
5) Solve.
6) Answer the question using the appropriate units.

A **bearing** is an acute angle measured between the north-south line and the line of sight.

Example:
An ecologist wishes to find the height of a redwood tree that is on the other side of a creek. From a point A he finds that the angle of elevation to the top of the tree is 15.4°. He then walks 35.2 feet at a right angle from point A to point B. There he finds that the angle between AB and a line extending from B to the base of the tree is 78.6°. What is the height of the tree?

A ship leaves port and sails 12 miles due west. It then turns and sails due north for 20 miles. At this point, at what bearing should the ship sail to get back to port?

Directions: Draw a picture, label all given information, identify the parts needed to solve for, write the equation, and solve. Round all answers to the nearest tenth.

1. The two equal sides of an isosceles triangle are each 33 inches. If each of the two equal angles measures $47°$, find the length of the base and the altitude.

2. If a 100-foot flagpole cases a shadow 52 feet long, what is the angle of elevation of the sun from the tip of the shadow?

3. How long should an escalator be if it is to make an angle of $39°$ with the floor and carry people a vertical distance of 24 feet between floors?

4. The diagonal of a rectangle is 344 mm and the longer side is 274 mm. Find the shorter side of the rectangle and the angles made by the diagonal.

5. If the angle of elevation of the sun is $34°10'$, when a building casts a shadow 84.2 ft long, what is the height of the building?