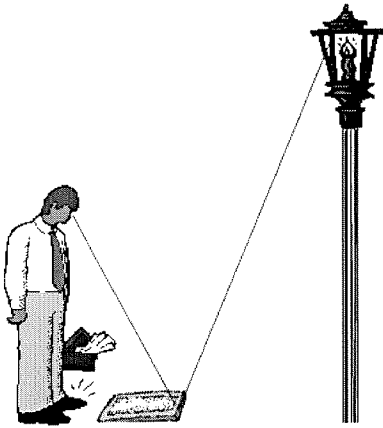


# Ratio and Proportion Lab

An investigation using Shadows and Mirrors

Name \_\_\_\_\_

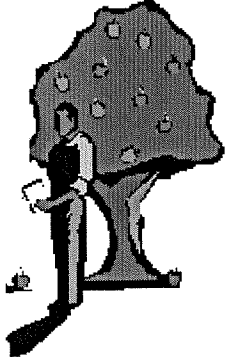


Directions: Complete each problem as indicated at its station. For each problem, draw a picture, tell which triangles are similar to each other, label all parts, write an equation, and then solve the problem. Be sure to carefully record each measurement at the Mirror Measurement stations. Use the following variables at the Mirror Measurement stations:  
 $d$  = distance from the floor to eye level  
 $f$  = distance from your feet to the reflection of the object in the mirror  
 $w$  = distance from the reflection in the mirror to the wall  
 $h$  = the height from the floor to the object  
\*Make all measurements to the nearest cm, and write all answers in complete sentences.

Station 1: Marcus is looking down into a mirror (see illustration above) and has moved back to see the top of the lamp post at the top edge of the mirror. He knows that his eyes are 6' off of the ground and he is 1.5' from that point on the mirror. The distance from that point on the mirror to the lamp post is  $37 \frac{1}{2}$ ". How tall is the lamp post?

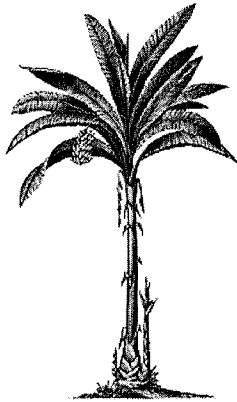
Station 2

Station 3: Jared is standing 5' in front of a tree and he is 6' tall. His shadow is 4 foot long. How tall is the apple tree?



Station 4

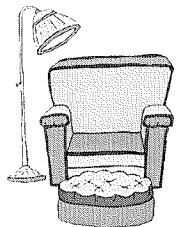
Station 5



One day the shadow of the small 3' 4" tree cast a shadow of 5 feet. The palm tree cast a shadow of 25.5 feet. How tall is the palm tree?

Station 6

Station 7: The light is sitting on the floor behind the chair at a distance of  $1\frac{1}{2}$  feet from the bottom of the lamp to the back of the chair. The lamp is shining on the chair and casts a shadow 4 foot in front of the chair and the light source is 66 inches off the floor over the bottom of the lamp. How tall is the back of the chair?



Station 8



Station 9

If the sign is 5' 10" tall and is 1' 5" from the lamp post which is 8' 8" tall, how long is the sign's shadow?

