Homework 3

Sarah Verderame

Problem 1

```
%{
 t is the angle in radians of the inner corner of the cone. h is the
 height the user will input. VCY is the volume of the cylinder, only
 using height. The radius was found for the cone using the input
 height and the tangent of the angle t. The variable n was used to
 find the height of the tip of the cone to find the volume of the top
 of the cone. This volume would be subtracted by the full volume of
 the cone because it is already accounted for in the volume of the
 cylinder.Finally, VCN is the volume of the cone itself (without the
 subtracted tip).
%}

t=atan(14/10.5);
h=input('What is the height of the water in meters in the container?')
VCY=pi*12.5*h;
r=h/(tan(t));
n=12.5*tan(t);
VCN=pi*r*h/3;

%{
Next, the code checks to make sure the input variable is a numeric
 entry and that it is less than 33 meters (which is the maximum
 height of the tank). It will display a warning if the variable is not
 appropriate.
%}

if h>33
   error('This is not a valid height for the water!')

%{
The code will carry on into nested 'if' statements that will find the
 volume of the cone and subtract the volume of the cone tip if the
 height reaches above the top of the cylinder. Then it will add both
 the volumes of the cyclinder and the cone together. If the height is
 less than 19 meters, the code will just calculate the volume of the
 cyclinder with the given height.
%}

else
    if h>19
        VCN=VCN-(pi*12.5*(n)/3);
        V=VCY+VCN;
    else
        V=VCY;
    end
end
```

```
% The code will display the value as a sentence.

final='The volume of the water in the tank is ';
X=[final, num2str(V),' m^3.'];
disp(X)
```

```
Error using input
Cannot call INPUT from EVALC.

Error in HW_3_SarahVerderame (line 10)
h=input('What is the height of the water in meters in the container?')
```

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