Table of Contents


```
function [windrow_height,windrow_weight] =
 PS06_salt_windrow_ipitman_zhou823(windrow_width,windrow_length);

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% ENGR 132
% Program Description
% Finding the windrow height and weight when we are given the values
 for
% the windrow width and lenth.
%
% Function Call
% [windrow_height,windrow_weight] =
 PS06_salt_windrow_ipitman_zhou823(windrow_width,windrow_length)
%
% Input Arguments
% 1. Windrow width (scalar)
% 2. Windrow length (scalar)
%
% Output Arguments
% 1. Windrow height (scalar)
% 2. Windrow weight (scalar)
%
% Assignment Information
%   Assignment:   PS 06, Problem 1
%   Team ID:   002-08
%   Paired Partner:  Ian Pitman, ipitman@purdue.edu
%   Paired Partner:  Yi Zhou, zhou823@purdue.edu
%   Contributor:  Name, login@purdue [repeat for each]
%   Our contributor(s) helped us:
%     [ ] understand the assignment expectations without
%         telling us how they will approach it.
%     [ ] understand different ways to think about a solution
%         without helping us plan our solution.
%     [ ] think through the meaning of a specific error or
%         bug present in our code without looking at our code.
%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

INITIALIZATION

```
% Angle of Repose
angle_repose = 32 * (pi/180);   % angle of repose (radians)

% Density of Salt
salt_density = 80;    % density of salt (pounds per cubic feet)
```

CALCULATIONS

```
% Convert salt density to (metric ton)/m^3 using the conversion
 constants:
% 1 kg = 2.2 lb, 1 mt = 1000 kg, 1 m = 3.3 ft
salt_density_mt = salt_density * (1/2.2) * (1/1000) * (3.3^3);    %
 density of salt (metric ton/m^3)

% Calculate the height, volume, and weight of salt in a single windrow
 pile
windrow_height = (windrow_width * tan(angle_repose)) / 2;   % height
 of single windrow pile (meters)
windrow_volume = (windrow_width * windrow_height * windrow_length) /
 2;    % volume of single windrow pile (m^3)
windrow_weight = (salt_density_mt * windrow_volume) * 9.8;    % weight
 of a single windrow pile (metric tons)
```

FORMATTED TEXT & FIGURE DISPLAYS

```
fprintf('The height of one windrow pile is %0.2f meters \n',
 windrow_height )
fprintf('The weight of one windrow pile is %0.1f metric tons \n',
 windrow_weight )
```

The height of one windrow pile is 5.73 meters
The weight of one windrow pile is 30314.4 metric tons

COMMAND WINDOW OUTPUT

```
% [windrow_height,windrow_weight] =
 PS06_salt_windrow_ipitman_zhou823(windrow_width,windrow_length)
```

```
%  The height of one windrow pile is 5.73 meters
% The weight of one windrow pile is 30314.4 metric tons
% windrow_height =
%
%     5.7332
%
%
% windrow_weight =
%
%    3.0314e+04
```

ACADEMIC INTEGRITY STATEMENT

We have not used source code obtained from any other unauthorized source, either modified or unmodified. Neither have we provided access to our code to another. The function we are submitting is our own original work.

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