

Question 1

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% Question:
% What forms of solar activity can be found in the Photosphere?

% Solution:

%{
    The following forms of solar activity can be found in the photosphere:
    -Granules
    -Supergranulations
    -Faculae
    -Solar Flares
    -Sunspots
%}
```

Question 2

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% Question:
% Classify a Solar Flare with a X-Ray output of  $3 \times 10^{-5} \text{ W/m}^2$  .

% Solution:

%{
    Since the X-Ray output =  $3 \times 10^{-5} \text{ W/m}^2$  that lands in the C
    class Solar Flare.

%}
```

Question 3

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% Question
% What is the defining characteristic of terminal shock?

% Solution

%{
    Given that a Solar wind slows down as it expands at a rate of ~
    2.7 km/sec per AU, it becomes terminal shock once it drops to
    subsonic.

%}
```

Question 4

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% Question
    % What is the solar constant as the orbit of Ceres (2.767 AU)

% Solution

    %{
        Using the equation  $s(r) = s_e \cdot (a/r)^2$ 
            where
                 $s_e$  = Solar Coonstant at distance R
                 $a = 1$  AU
                 $r$  = distance from the sun

    %}

clc; clear;
a = 1 ; % AU
```

```
a = 1
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```
s_e = 1366.1 ; % W/m^2
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```
s_e = 1.3661e+03
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```
r = 2.767 ; % AU
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```
r = 2.7670
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```
s_r = s_e*(a/r)^2
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```
s_r = 178.4285
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```
s_r = 178.428 W/m^2
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Question 5