ICA #1

1/14/2010

James Cox

Engr. 141 Section 10

1.

ICA 17-1

1. Pick a whole number between one and ten or that is one or ten.
2. Take that same whole number as picked in step one and determine what whole numbers, if any, are between that whole number and one.
3. Once those whole numbers are found, multiply the original whole number by each one of the numbers in between one time each.
4. Then you have the factorial of the original whole number.

Take that whole number and determine what, if any, whole numbers are between that whole number and one.

ICA 17-6

Begin

Pick a whole number between one and ten or that is one or ten.

2.

End

Find the product of the original whole number and each one of the whole numbers between that whole number multiplied together.

ICA 17-5

1. Look at the traffic light.
2. Use the foveas in your eyes to see the color of the light, either red, yellow, or green.
3. If the color of the light is not green skip
4. If the light is green, continue driving your car through the intersection on the proper side of the road while still using your eyes to not run into anything.
5. If the light is yellow, slow down and wait for the light to turn red, then stop at the intersection.
6. Wait for the light to turn green with your car stopped and then proceed through the intersection once the light turns green.
7. If the light is red, stop 1 foot in front of the white line perpendicular to your car before entering the intersection.
8. Wait for the light to turn green, then proceed through the intersection while staying on your side of the road.

Drive through the intersection within the speed limit and safely.

Is the light Green?

The light is red. Stop approximately one foot in front of the white, perpendicular line on the road before entering the intersection. Once the light has turned green, then proceed through the intersection.

Slow down until the light has turned red and then come to a complete stop approximately one foot in front of the white, perpendicular line on the road before entering the intersection. Once the light has turned green, then proceed through the intersection.

yes

No

Is the light yellow?

no

yes

Begin

End

3.

Atmosphere Problem

1. Let h be the height of the altitude.
2. Let T be the temperature at a particular altitude.
3. Let e be euler’s constant.
4. Determine what the given altitude is.
5. If the height is above 25000 feet, then the altitude is in the Upper Stratosphere.
6. If the altitude is in the upper stratosphere, then to get the temperature, plug the height into the equation T=-131.21+.00299\*h and the temperature is in degrees celcius. For the pressure, plug T into the equation P=2.488\*[(T+273.1)/216.6]^(-11.388) and the pressure is in Kila Pascal.
7. If the height is above 11000 feet, but below 25000 feet, then the altitude is in the lower stratosphere.
8. The temperature in the lower stratosphere is -56.46 degrees celcius.
9. Plug the altitude in feet into the equation 22.65\*e^(1.73-0.000157\*h) to get the pressure in kila pascal.
10. If the altitude is not in the lower stratosphere or the upper stratosphere, it is in the troposphere.
11. Here, the temperature is 15.04-0.00649\*h with h being the altitude.
12. Plug the T for the altitude in the lower stratosphere into the equation p=101.29\*[(T+273.1)/288.08]^5.256 with the p in kila pascals.

yes

Is the altitude above 25000 ft?

The altitude is in the upper stratosphere.

Begin

End

Use the equation p=22.65\*e^(1.73-0.000157\*h with e being euler’s constant, h being the altitude, and p being the pressure.

The altitude is in the lower stratosphere and the temperature is -56.46 degrees celcius.

No

Use the equation T= 15.04-0.00649\*h to get the temperature In degrees celcius with h being the altitude. Use the equation p=101.29\*[(T+273.1)/288.08]^5.256 to get the pressure in kila pascal.

The altitude is in the Troposphere.

yes

Is the altitude less than 11000 feet?

No

Use the equation T=-131.21+.00299\*h to get the temperature in celcius. Use the equation P=2.488\*[(T+273.1)/216.6]^(-11.388) to get the pressure in kila pascal.

4.

Electromagnetic Radiation

1. The spectrum of visible light’s wavelengths is between 400 and 700 nm.
2. If the wavelength is between 400 to 700 nm, it is in the spectrum of visible light.
3. If it is not, the wavelength does not lie within the spectrum and caution should be taken as the ray of light with the wavelength could be hazardous to a person’s health.

Is the wavelength between 400 and 700 nano meters?

End.

The light is not within the visible spectrum of light. Use caution when near this light as it may be damaging to health.

No

yes

The Light is within the spectrum of visible light.

Begin