Temperature/Latitude/Density Effects

Name: _____

DATA & GRAPH:

1. Label the "X" axis "Latitude". Label 0˚ N/S at the **CENTER** of the "X" axis. Label intervals of 20˚S latitude to the **RIGHT** of 0˚ N/S (up to 60˚S) and label intervals of 20˚N latitude to the **LEFT** of 0˚ N/S (up to 60˚S).
2. Using Data Table #1 below, construct a **LINE GRAPH** to show the ***effects of latitude on temperature***. Use a colored pen or colored pencil to highlight the line graph. * ***Label the LEFT SIDE of the "Y" axis "Temperature (˚C)" and start "0˚C" at the bottom left, moving up in intervals of 1˚C until you get to 40˚C.*** *
3. Using Data Table #1 below, construct a second **LINE GRAPH** to the **SAME** graph to show ***effects of latitude on density***. Use a different colored pen or colored pencil to highlight the second line graph. * ***Label the RIGHT SIDE of the "Y" axis "Density (g/cm^3)" and start "0 g/cm^3" at the bottom right. Label the FIFTH line up as 1.0235 g/cm^3 and with every fifth line, label in intervals of 0.0005 g/cm^3 up to 1.0270 g/cm^3.*** *

**** Data Table #1: Idealized Ocean Surface Water Temperatures and Densities at Various Latitudes ****

Latitude	Surface Temperature (°C)	Surface Density (g/cm^3)
60° N	5	1.0258
40° N	13	1.0259
20° N	24	1.0237
0°	27	1.0238
20° S	24	1.0241
40° S	15	1.0261
60° S	2	1.0272

ANALYSIS & CONCLUSION: Answer the following analysis questions below in **COMPLETE SENTENCES**.

1) Describe the relationship between ***latitude*** and ***temperature***.

2) Describe the relationship between ***latitude*** and water ***density***.

3) Describe the relationship between ***temperature*** and water ***density***.

4) Which water mass ***(cold or hot)*** will have the greater density? **Explain your reasoning.**

5) If two water masses had equal salinities *(amount of salt content),* **EXPLAIN** which water mass would be more dense: Water Mass "A", which has a temperature of 25**°**C or Water Mass "B", which has a temperature of 14**°**C?

6) Describe the density and temperature characteristics of water found in ***equatorial regions***.

7) Describe how density and temperature characteristics in equatorial regions compare to water found at the ***poles***

8) Explain the reason as to why higher average surface densities are found in the Southern Hemisphere.