**Function Families**
**Study Guide**

**For 1 - 13, name the family that each equation belongs to and sketch a graph.**

1. $y = 4x^5$
2. $y = -\sqrt{3x}$
3. $y = 5(4)^x$
4. $y = \sin x$
5. $y = -5x$
6. $y = 6\log x$
7. $y = -\frac{6}{x^9}$
8. $y = \frac{2}{3}|x|$
9. $y = -7x^4$
10. $y = -\tan x$
11. $y = \sqrt[3]{x}$
12. $y = -3\left(\frac{2}{3}\right)^x$
13. $y = \frac{1}{x^2}$

**For 1 – 8, tell:**

| | | |
|---|---|---|
| **a) type** | **b) domain and range** | **c) increasing and decreasing** |
| **d) intercepts** | **e) asymptotes** | **f) end behavior** |

**For 14 – 18, describe the transformations and then graph using transformations. Show all three tables.**

14. $y = -5\sqrt[3]{x-3}+1$
15. $y = |2x|+4$
16. $y = \frac{1}{x-3}-2$
17. $y = -2(x+1)^3$
18. $y = 2\left(\frac{1}{2}\right)^{x+1}+4$

**For 14 – 18, tell the domain and range of the final graph.**