**PreAP Algebra 2** **Name: _____**
**5.1 – HW Intro to Exponential Functions** **Date: _____ Period: _____**

1. Without your calculator, fill in the missing information.

| Original Equation | Transformations | New Equation | New Equation | | End Behavior |
|---|---|---|---|---|---|
| | | | Domain | Range | |
| $f(x)=(2)^x$ | right 5, down 6 | | | | |
| $f(x)=(10)^x$ | _____, _____, reflect over x-axis | | $(-\infty,\infty)$ | $(-\infty,7)$ | |
| $f(x)=\left(\frac{1}{2}\right)^x$ | vertical stretch of 2, up 9 | | | | |
| $f(x)=(2)^{x-3}-7$ | left 8, up 5 | | | | |
| | left 3, down 4 | $f(x)=-(10)^{x+2}-6$ | | | |
| $f(x)=\left(\frac{1}{2}\right)^{x-5}$ | | $f(x)=\left(\frac{1}{2}\right)^{x-4}+6$ | | | |

2. Which function has an end behavior of $\lim_{x\to\infty} f(x)=\infty$ $\lim_{x\to-\infty} f(x)=-2$

A. $f(x)=\left(\frac{1}{3}\right)^x+2$ B. $f(x)=(2)^x$

C. $f(x)=2(3)^x$ D. $f(x)=(4)^x-2$

**Solve each equation. Remember to check your solution.**

3. $3^x=9$ 4. $2^{2x+3}=32$

5. $49^x=\frac{1}{7}$ 6. $4^{3x-2}=16$

7. $3^{2x+5}=27^x$ 8. $27^x=3^{2x+3}$