Algebra 1: 5.4 – 5.5 & Exponent Rules Test Review **Name** _____ **Period** ___

1. **Write the equation of each function $g(x)$ after the translation.**

   a. $f(x)=5x^2$ after a reflection over the x-axis _____

   b. $f(x)=2^x$ after a reflection over the y-axis _____

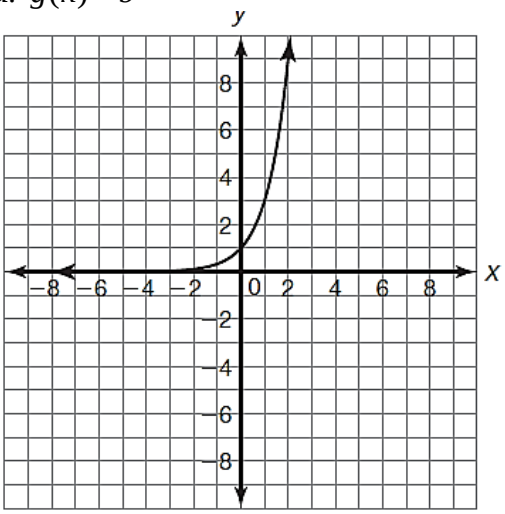
2. **Describe (in words) each graph in relation to its basic function.**

   a. Compare $g(x)=-4^x$ to the basic function $f(x)=4^x$ _____

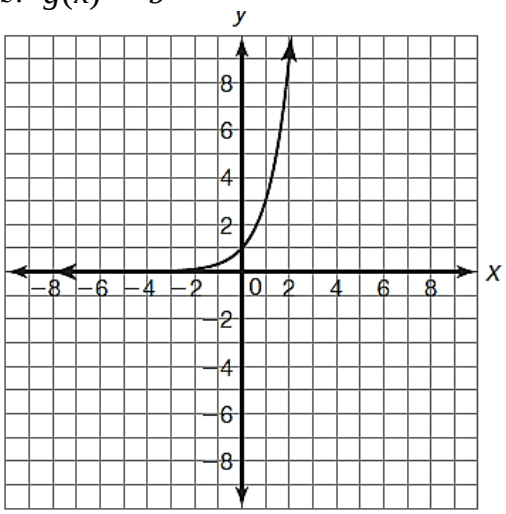
   b. Compare $g(x)=5^{-x}$ to the basic function $f(x)=5^x$ _____

3. **Each coordinate plane shows the graph of the basic function. Sketch the graph of $g(x)$.**

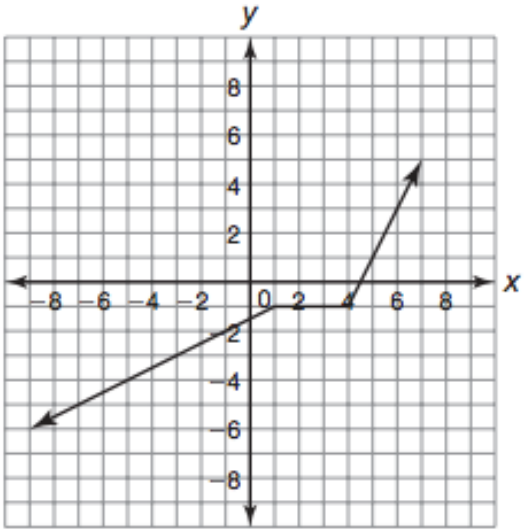
   a. $g(x)=b^{-x}$



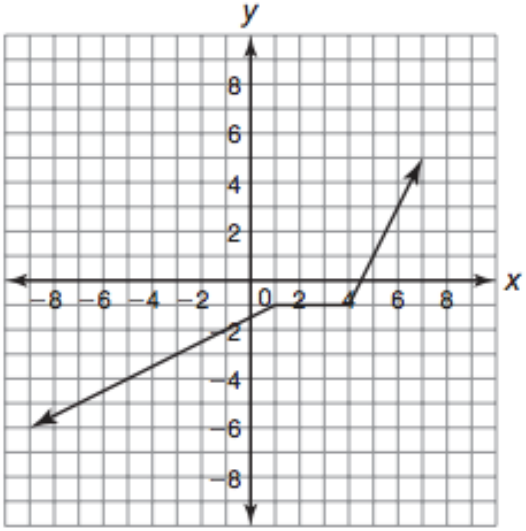
   b. $g(x)=-b^x$



   c. $g(x)=-f(x)$



   d. $g(x)=f(-x)$



Simplify each expression.

4. $-3j^6 \cdot 12j$

5. $-8h^3 \cdot 5h^{-4}$

6. $4x^{-3}y^0$

7. $\dfrac{9m^{-2}}{4n^{-1}}$

8. $\dfrac{-6a^{-2}bc^2}{-d^{-4}}$

9. $\dfrac{10fg^{-5}h^0}{h^{-2}}$

10. $\left(-4x^3y\right)^2$

11. $\left(x^{-2}y^4 \cdot x^5y^{-7}\right)^3$

12. -11^0

13. $\left(\dfrac{-4x^3}{-8x^6}\right)^3$

14. $\dfrac{x^6y^9}{x^2y^5}$

15. $\left(\dfrac{3x^4}{2y^3}\right)^3$

Evaluate each expression.

16. $\sqrt[3]{343}$ = _____ Because _____

17. $\sqrt[3]{-8}$ = _____ Because _____

18. $\sqrt[4]{256}$ = _____ Because _____

19. $\sqrt[5]{-243}$ = _____ Because _____

Write each radical as a power.

20. $\sqrt[3]{13}$

21. $\sqrt[6]{y^2}$

22. $\sqrt[7]{m^2}$

23. $\sqrt{x^5}$

Write each power as a radical. Simplify your answer, if possible.

24. $x^{\frac{1}{2}}$

25. $y^{\frac{2}{3}}$

26. $9^{\frac{2}{5}}$

27. $n^{\frac{5}{2}}$