Find the inverse of each relation.
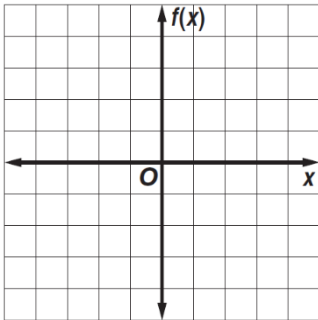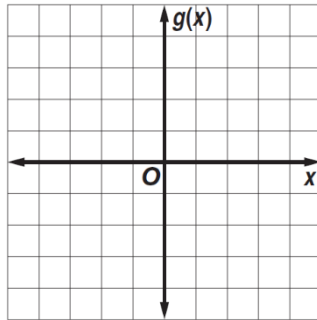
1. $\{(0,3),(4,2),(5,-6)\}$

2. $\{(-5,-4),(1,2),(3,4),(7,8)\}$

Find the inverse of each function. Then graph the function and its inverse.
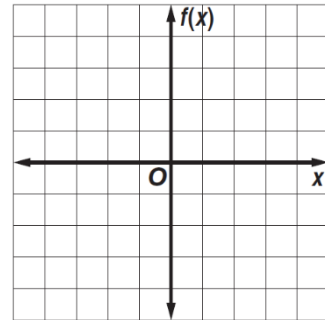
3. $f(x)=\dfrac{3}{4}x$

4. $g(x)=3+x$

5. $f(x)=3x-2$

For #6 and 7, use the following information. The Clearys are replacing flooring in their 15 foot by 18 foot kitchen. The new flooring costs $17.99 per square yard. The formula $f(x)=9x$ converts square yards to square feet.
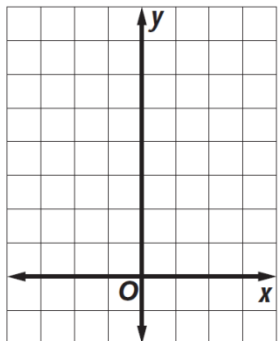
6. Find the inverse $f^{-1}(x)$. What is the significance of $f^{-1}(x)$ for the Clearys?

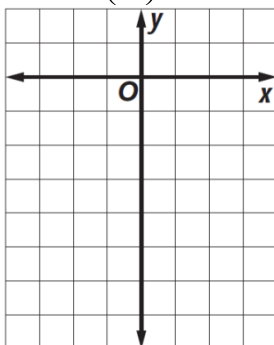7. What will the new flooring cost the Clearys?

Algebra 2A   Name _____

6.2   <u>Assignment</u>

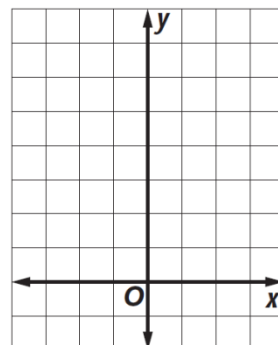**Sketch the graph of each function. Then state the function's domain and range.**

1. $y = 3(2)^x$

2. $y = 2\left(\dfrac{1}{2}\right)^x$

3. $y = 0.25(5)^x$

Determine whether each function represents exponential growth or decay.

4. $y = 0.3(1.2)^x$

5. $y = 5\left(\dfrac{4}{5}\right)^x$

6. $y = 3(10)^{-x}$

Solve each equation or inequality. Check your solution.

7. $3^{2x-1} = 3^{x+2}$

8. $2^{3x} = 4^{x+2}$

9. $3^{2x-1} = \dfrac{1}{9}$

10. $4^{x+1} = 8^{2x+3}$

11. $8^{x-2} = \dfrac{1}{16}$

12. $25^{2x} = 125^{x+2}$

Write an exponential function whose graph passes through the given points.

13. (0, 1) and (-1, 3)

14. (0, 4) and (1, 12)

15. (0, 3) and (-1, 6)

16. (0, 5) and (1, 15)

Simplify each expression.

17. $\left(3^{\sqrt{3}}\right)^{\sqrt{3}}$

18. $\left(x^{\sqrt{2}}\right)^{7}$

19. $5^{2\sqrt{3}} \cdot 5^{4\sqrt{3}}$

20. $x^{3\pi} \div x^{\pi}$

Write each equation in logarithmic form.

1. $2^7 = 128$

2. $3^{-4} = \dfrac{1}{81}$

3. $\left(\dfrac{1}{7}\right)^3 = \dfrac{1}{343}$

Write each equation in exponential form.

4. $\log_{15} 225 = 2$

5. $\log_3 \dfrac{1}{27} = -3$

6. $\log_4 32 = \dfrac{5}{2}$

Evaluate each expression.

7. $\log_4 64$

8. $\log_2 64$

9. $\log_{100} 100{,}000$

10. $\log_5 625$

11. $\log_{27} 81$

12. $\log_{25} 5$

Solve each equation.

13. $\log_2 32 = 3x$

14. $\log_3 2x = -2$

15. $\log_{2x} 16 = -2$

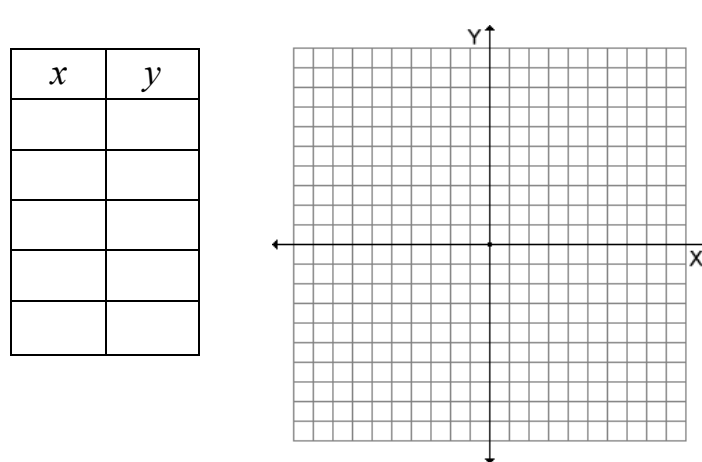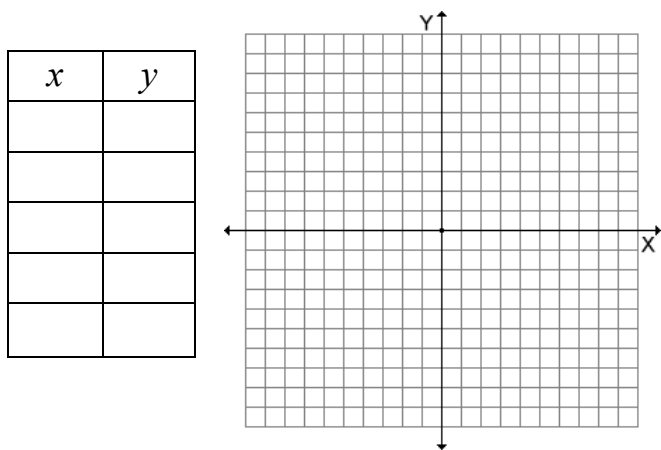16. $\log_{25}\left(\dfrac{x}{2}\right) = \dfrac{1}{2}$

17. $\log_4(3x-1) = \log_4(2x+3)$

18. $\log_8(4x+4) = 2$

Graph the function.

19. $x = \log_{1.3}(y)$

20. $x = \log_{0.4}(y)$

x	y

x	y

Algebra 2A   **Name _____**

6.4   **Assignment**

Solve each equation. Check your solutions.

1. $\log_5 4 + \log_5 2x = \log_5 24$

2. $3\log_4 6 - \log_4 8 = \log_4 x$

3. $\dfrac{1}{2}\log_6 25 + \log_6 x = \log_6 20$

4. $\log_2 4 - \log_2 (x+3) = \log_2 8$

5. $\log_6 2x - \log_6 3 = \log_6 (x-1)$

6. $2\log_4 (x+1) = \log_4 (11-x)$

7. $\log_3(c+3)-\log_3(4c-1)=\log_3 5$

8. $\log_5(x+3)-\log_5(2x-1)=2$

9. $\log_3 d+\log_3 3=3$

10. $\log_{10} y-\log_{10}(2-y)=0$

11. $\log_2 x+2\log_2 5=0$

12. $\log_2(x+4)-\log_2(x-3)=3$