

Unit 1 - 1st Semester Final Review Worksheet

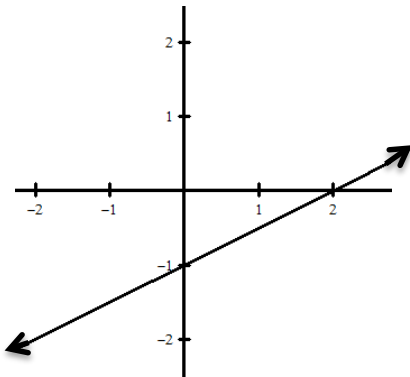
Writing/Graphing Functions

[1-4] Write the equation that represents the given graph.

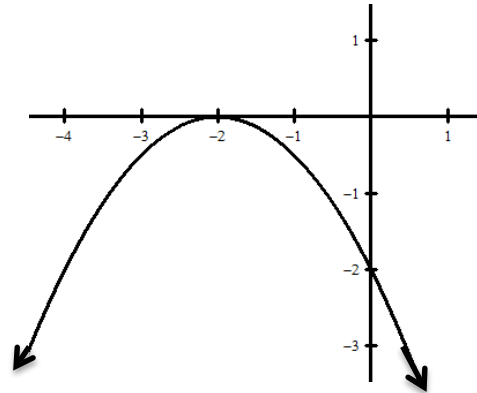
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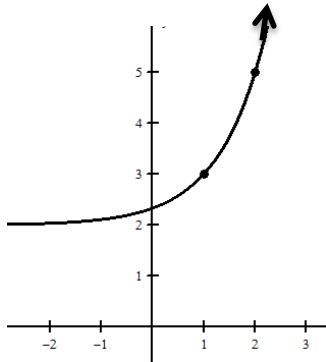
1. Equation _____



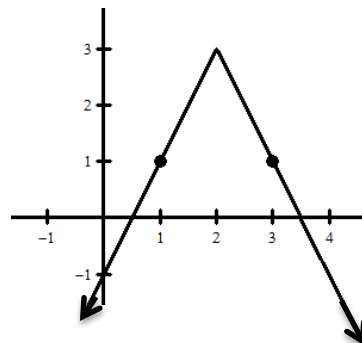
2. Equation _____



3. Equation _____



4. Equation _____



[5-12] Accurately graph the given equations on a separate sheet of paper and state the domain and range.

5. $y = \frac{2}{3}(x - 1) + 2$

6. $y = -\frac{1}{2}(x - 1)^2 + 2$

7. $y = 2 - |x + 4|$

8. $y = 2^{x-1}$

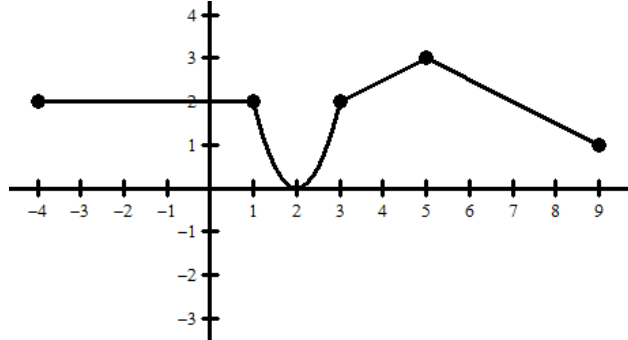
9. $f(x) = 3x - 2$ for $-1 < x \leq 2$

10. $f(x) = 3|x + 1| - 4$ for $-3 \leq x \leq 0$

11. $f(x) = \begin{cases} 2 & x < 0 \\ -x + 2 & x \geq 0 \end{cases}$

12. $f(x) = \begin{cases} (x-1)^2 & x < 3 \\ |x| - 1 & x > 3 \end{cases}$

13. Given a three piecewise-defined function, f , shown below.



What type of function (Linear, Quadratic, Exponential, or Linear Absolute Value) is graphed on each of the following open intervals?

a) $(-4, -1)$

b) $(1, 3)$

c) $(3, 9)$

[14-17] Describe the transformation(s) in words.

14. $f(x) = \frac{1}{2}x^2$ and $g(x) = \frac{1}{2}(x - 2)^2 + 3$

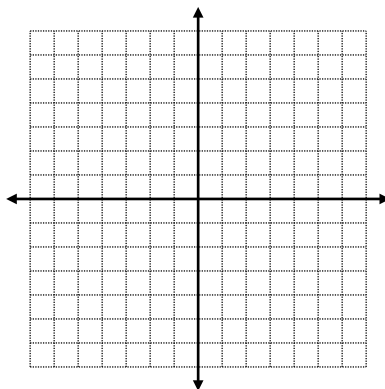
15. $f(x) = -\frac{1}{2}|x|$ and $g(x) = -\frac{1}{2}|x + 4| - 1$

16. $f(x) = 2^{x+3}$ and $-f(x) - 1$

17. $g(x) = 3(x - 4) - 2$ and $g(-x) + 1$

18. Graph the function below and describe the transformation from $f(x)$ to $g(x)$.

$f(x) = 3x^2$ and $g(x) = 3(x + 4)^2 - 2$



19. For $f(x) = \begin{cases} 2^x + 1 & x \leq 2 \\ 1 - 3x^2 & x > 2 \end{cases}$, find the following:

a) $f(3) =$

b) $f(2) =$

c) $f(0) =$

20. For $f(x) = \begin{cases} x^2 + 2 & x < 0 \\ -2|x - 1| + 3 & x \geq 0 \end{cases}$, select all statements that are true.

a) $f(3) = -1$

b) $f(2) = 6$

c) $f(0) = 2$

d) $f(0) = 1$

e) $f(-2) = -2$