Homework: Basics of Functions and Their Graphs

In Problems 1-5, determine whether each relation is a function. Give the domain and range for each relation

1. $\{(2,3),(4,8),(5,9)\}$	2. $\{(1,3),(1,5),(2,9),(2,11)\}$
3. $\{(1,-5),(2,-5),(3,4),(5,8)\}$	4. $\{(5,5),(7,7),(11,11)\}$
5. $\{(2,-1),(2,-4),(2,-5)\}$	

In Problems 6-13, determine whether each equation defines y as a function of x

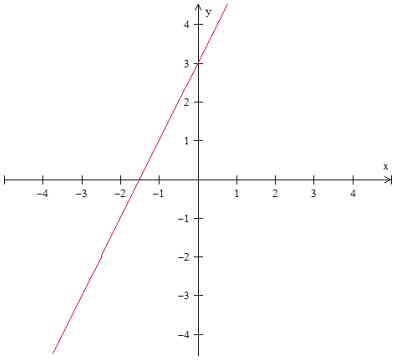
6. $3x-y=4$	7. $y=x^2-8$
8. $x^2-y^2=4$	9. $y^2=x+3$
10. $y=\sqrt{3x-8}$	11. $3xy+4y=2x$
12. $y^5=x-2$	13. $\lvert y\rvert=x+2$

In Problems 14-19, evaluate each function at the given values of the independent variable and simplify

14. $f(x)=7x-2$ $a)f(2)\quad b)f(x-1)\quad c)f(-x)$	15. $f(x)=x^2+3x-1$ $a)f(-2)\quad b)f(x+4)\quad c)f(-x)$
16. $g(x)=x^3-2x^2+4x$ $a)g(1)\quad b)g(-2)$ $c)g(-x)\quad d)g(5b)$	17. $f(x)=\sqrt{x+3}-5$ $a)f(6)\quad b)f(1)\quad c)f(x-3)$
18. $f(x)=\dfrac{5x^2-2}{3x^2}$ $a)f(2)\quad b)f(-1)\quad c)f(-x)$	19. $f(x)=\dfrac{3x}{\lvert x\rvert}$ $a)f(2)\quad b)f(-4)\quad c)f(a^2)$

In Problems 20-24, Use the vertical line test to identify graphs in which y is a function of x

20.



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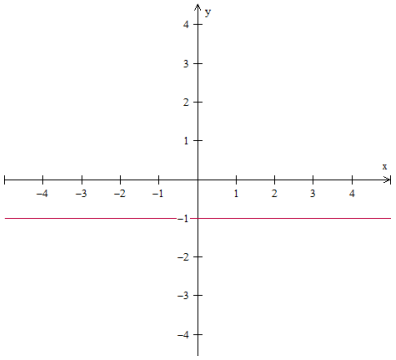

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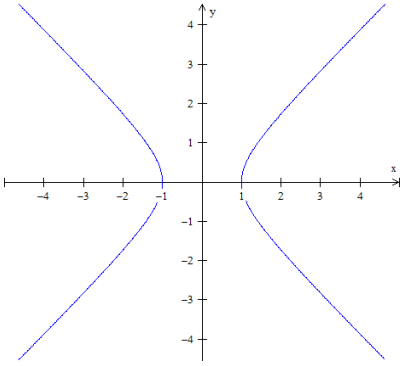

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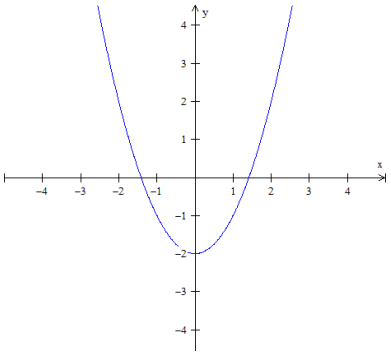

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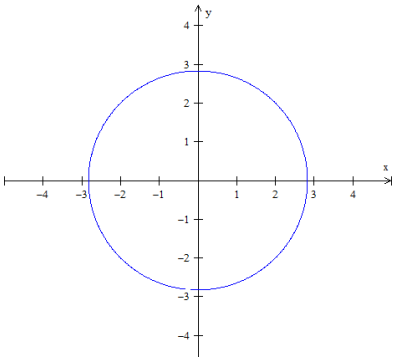
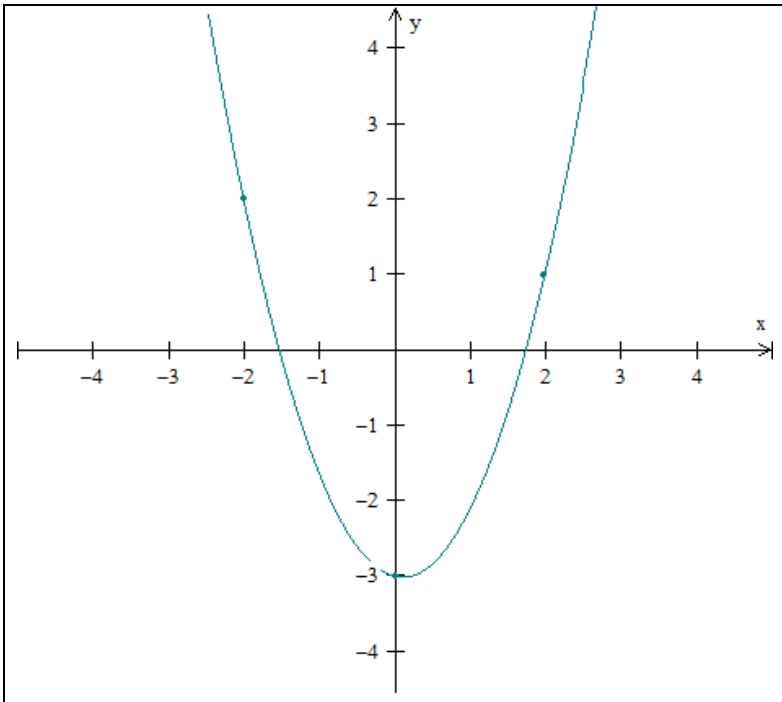


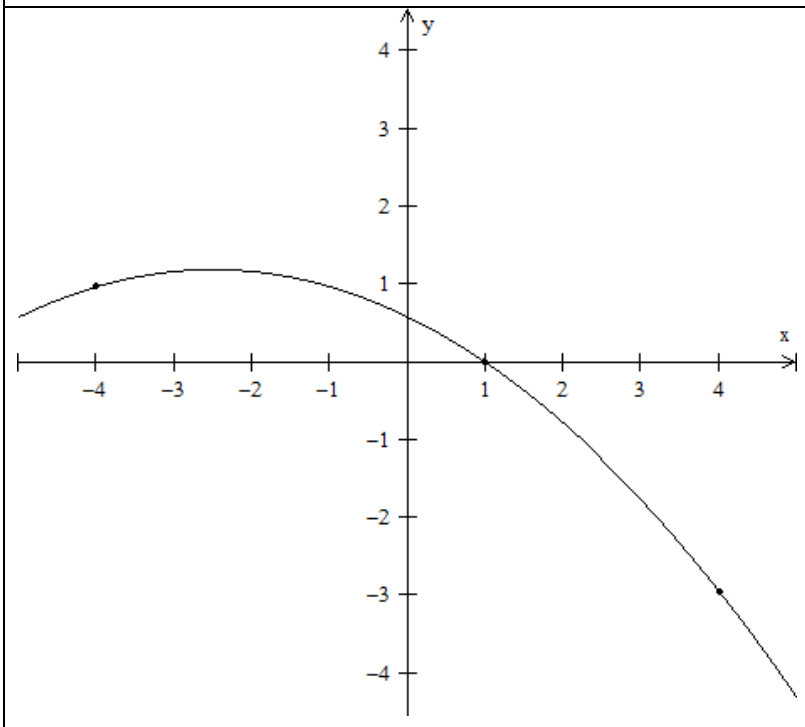
In Problems 25-30, use the graph of f to find each indicated function value.



25. $f(-2)$

26. $f(0)$

27. $f(2)$



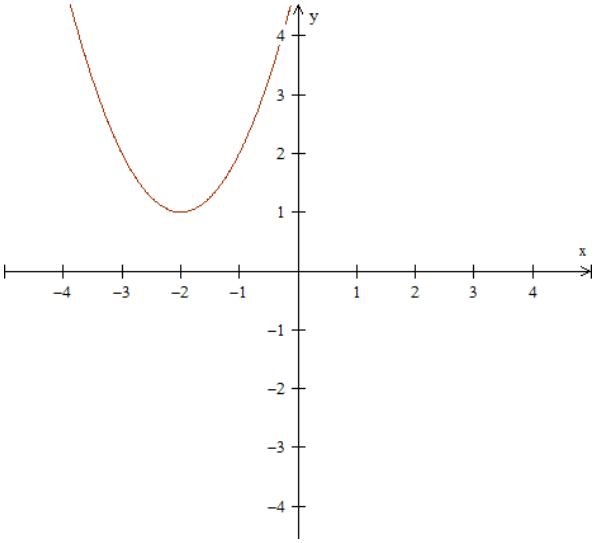
28. $f(-4)$

29. $f(1)$

30. For what value of x is $f(x) = -3$

In Problems 31-36, use the graph to determine a) the function's domain, b) the function's range, c) the x-intercepts, and d) the y-intercept

31.



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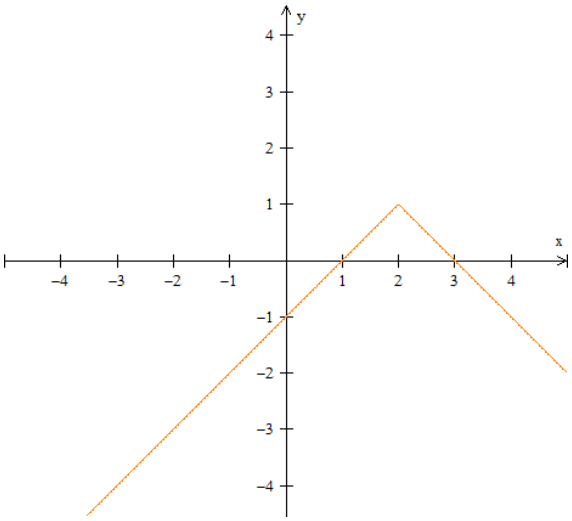

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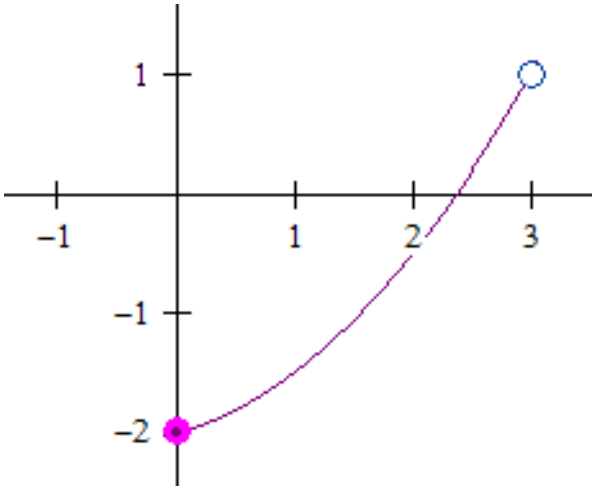

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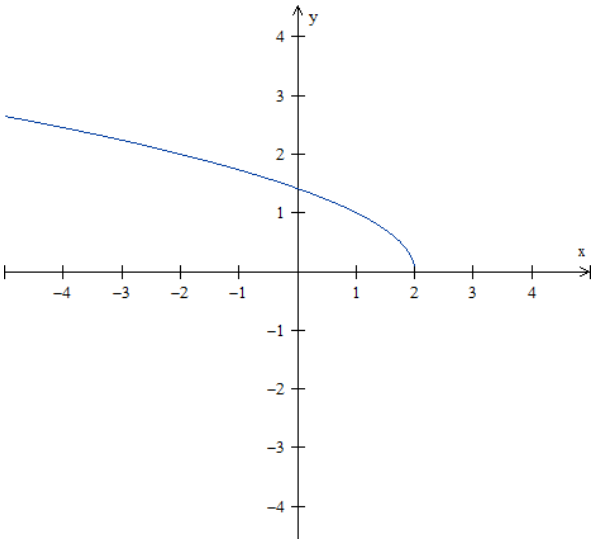

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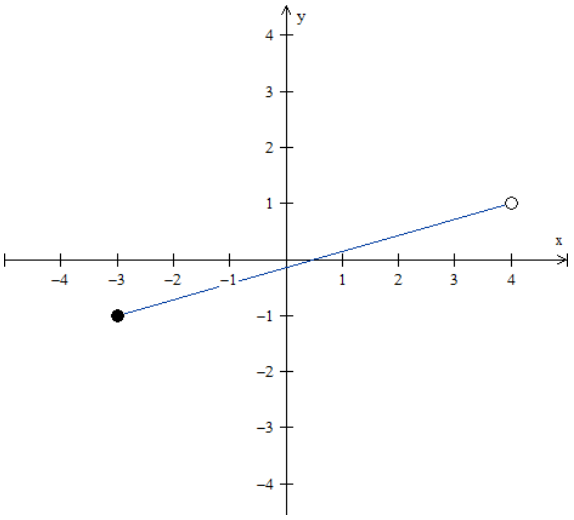

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