Math 1314 Review 1

Solve the following polynomial equations by factoring.

1. $2x^2+15x=8$ **2.** $2x^4=50x^2$ **3.** $2x^3-x^2-18x+9=0$

Solve the following equations by the square root method.

4. $2x^2+3=-125$ **5.** $(3x-4)^2=18$

Solve the following equations by completing the square.

6. $x^2-12x+27=0$ **7.** $3x^2+12x+11=0$

Solve the following equations using the quadratic formula.

8. $x^2-2x+19=0$ **9.** $2x^2=3-4x$

Use the discriminant to determine the number and type of solutions for the following.

10. $x^2-4x+13=0$ **11.** $9x^2=2-3x$

Solve the following radical equations.

12. $\sqrt{2x-3}+x=3$ **13.** $\sqrt{x-4}+\sqrt{x+1}=5$

Solve the following quadratic-like equations.

14. $x^4-5x^2+4=0$ **15.** $x^{\frac{1}{2}}+3x^{\frac{1}{4}}-10=0$

Solve the following absolute value equations.

16. $|2x+1|=7$ **17.** $2|x-3|+6=4$

Solve the following equations using any method you want.

18. $(3x+5)(x-3)=5$ **19.** $(x^2-x)^2-14(x^2-x)+24=0$

Solve the following inequalities.

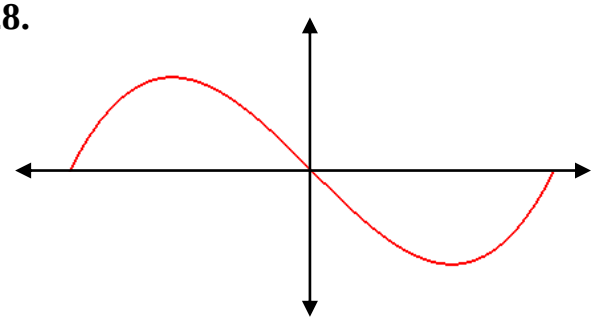
20. $-6x+3\le 15$ **21.** $7<2x+3\le 9$ **22.** $|2x+3|\le 0$ **23.** $-4|x+2|+5\le -7$

Evaluate the function $f(x)=\begin{cases}\sqrt{x-4}\,; x\ge 4\\ 4-x\ \ ; x<4\end{cases}$ *at the indicated value.*

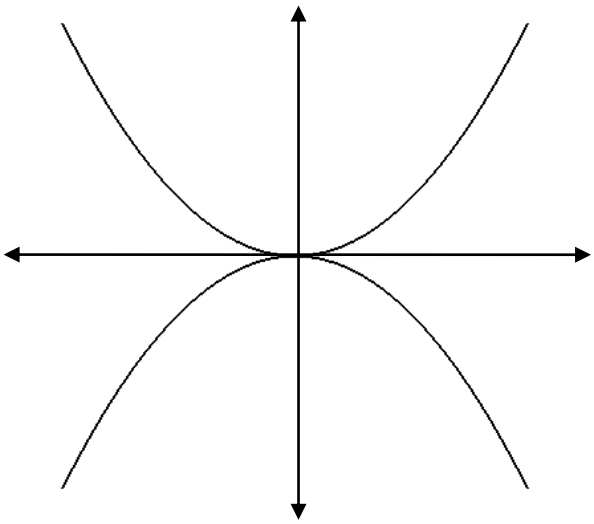
24. $f(13)$ **25.** $f(0)$ **26.** $f(-3)$ **27.** $f(4+x^2)$

Use the vertical line test to determine if the graph is of a function of x.

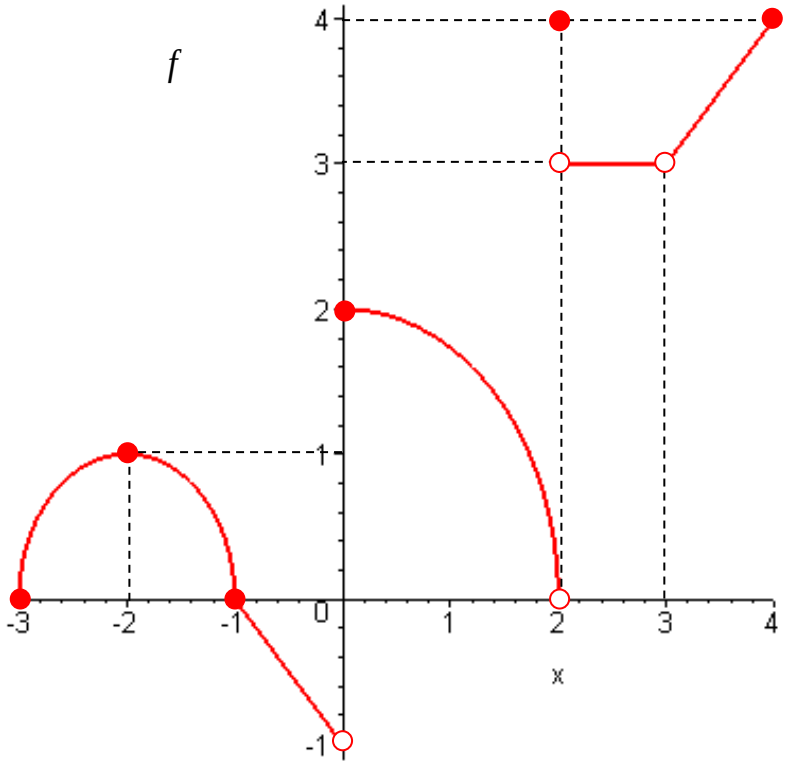
28.



29.



Use the given graph of the function f on the interval $[-3,4]$ *to determine the following:*



30. The domain of *f*

31. The range of *f*

32. The *x*-intercepts

33. The *y*-intercept

34. The intervals where *f* is increasing

35. The intervals where *f* is decreasing

36. The intervals where *f* is constant

37. Where *f* has local maxima

38. Where *f* has local minima

39. $f(0)$

40. $f(2)$

41. $f(3)$

42. $f\left(\frac{5}{2}\right)$

43. $f\left(-\frac{1}{2}\right)$

44. The solutions of the equation $f(x)=4$

45. The solutions of the inequality $f(x)<0$

Determine if the following functions are even, odd, or neither.

46. $f(x)=x^3-5x$

47. $g(x)=x^4-x+2$

48. $h(x)=x\sqrt[3]{x}$