AP Calculus AB - Worksheet 6 **Review for your first test.**

Write an equation for the specified line.	
1	through $(1,-6)$ with a slope of 3
2	the vertical line through $(0,-3)$
3	through $(3,3)$ and $(-2,5)$
4	through $(4,-12)$ and parallel to $4x+3y=12$.
5	through $(-1,2)$ and perpendicular to $\frac{1}{2}x+\frac{1}{3}y=1$.

Evaluate the function for each value

6 $f(x)=x^2-5x-6$;

a) $f(-3)$

b) $f(a+2)$

c) $\dfrac{f(x+h)-f(x)}{h}$

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$$f(x)=\begin{cases}-x-2, & x\le -1\\ x, & -1<x<1\\ -x+2, & x>1\end{cases}$$

a) $f(-3)$

b) $f(-1)$

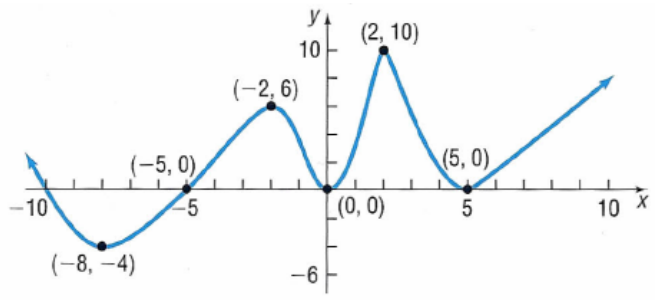
c) $f(1)$

d) $f(b^2+2)$

Solve each equation

8	$x^2+x-7=-5$
9	$e^{5x}-9=11$
10	$4\sin x=2$ in $[0,2\pi]$

Use the graph of $f(x)$ to answer questions 11-16



11	Evaluate $f(-2)$ and $f(-8)$
12	For what numbers x is $f(x)=0$?
13	For what values of x is $f(x)>0$?
14	How often does $f(x)=1$?
15	For what values of x is $f(x)$ increasing?
16	Is $f(-4)$ positive or negative?

Answers

1. $y+6=3(x-1)$	2. $x=0$	3. $y-3=-\frac{2}{5}(x-3)$ or $y-5=-\frac{2}{5}(x+2)$	4. $y+12=-\frac{4}{3}(x-4)$
5. $y-2=\frac{2}{3}(x+1)$	6. a) $f(-3)=18$ b) $f(a+2)=a^2-a-12$ c) $\frac{f(x+h)-f(x)}{h}=2x+h-5$	7. a) $f(-3)=1$ b) $f(-1)=-1$ c) $f(1)=\varnothing$ d) $f(b^2+2)=-b^2$	8. $(-2,0),(1,0)$
9. $x=\frac{\ln 20}{5}$	10. $x=\frac{\pi}{6},\frac{5\pi}{6}$	11. $f(-2)=6;\ f(-8)=-4$	
12. $f(x)=0$ at $x=-10,-5,0,$ and 5		13. $f(x)>0$ on $(-\infty,10),(-5,0),(0,5),(5,\infty)$	
14. $f(x)=1$ six times		15. $f(x)$ is increasing on $(-8,-2),(0,2),$ and $(5,\infty)$	
16. $f(-4)>0$			