1) $(1,-6)$ $m=3$
$y+6=3(x-1)$

2) $x=0$

3) $(3,3)$ $(-2,5)$
$m=-\frac{2}{5}$

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

or

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

4) $(4,-12)$ $L: 4x+3y=12$
$y=-\frac{4}{3}x+4$

$y+12=-\frac{4}{3}(x-4)$

5) $(-1,2)$ $L: \frac{1}{2}x+\frac{1}{3}y=1$
$3x+2y=6$
$y=-\frac{3}{2}x+3$

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

6) $f(x)=x^2-5x-6$
a) $f(-3)=18$

b) $f(a+2)=(a+2)^2-5(a+2)-6$
$=a^2+4a+4-5a-10-6$
$=a^2-a-12$

c) $\dfrac{f(x+h)-f(x)}{h}=\dfrac{(x+h)^2-5(x+h)-6-(x^2-5x-6)}{h}$

$=\dfrac{x^2+2xh+h^2-5x-5h-6-x^2+5x+6}{h}$

$=\dfrac{2xh+h^2-5h}{h}$

$=2x+h-5$

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

a) $f(-3)=1$

b) $f(-1)=-1$

c) $f(1)=\emptyset$

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

8) $x^2 + x - 7 = -5$
   $x^2 + x - 2 = 0$
   $(x-2)(x+1) = 0$
   $x = 2 \quad x = 1$

9) $e^{5x} - 9 = 11$
   $e^{5x} = 20$

   $5x = \ln 20$

   $x = \frac{1}{5} \ln 20$

10) $4 \sin x = 2$
    $\sin x = \frac{1}{2}$

    $x = \frac{\pi}{6}, \frac{5\pi}{6}$

11) $f(-2) = 6$
    $f(-8) = -4$

12) $f(x) = 0$ @ $x = -10, -5, 0, 5$

13) $f(x) > 0$ for $(-\infty, -10) \cup (-5, 0) \cup (0, 5) \cup (5, \infty)$

14) $f(x) = 1$ six times

15) $f(x)$ is increasing on $(-8, -2) \cup (0, 2) \cup (5, \infty)$
    since the slope of $f(x)$ is positive

16) $f(-4) > 0$ since $(-4, f(-4))$ lies above the x-axis