1. (1 pt) Solve the equation $5x + 1 = 3x + 9$.  

   \[ x = \] 

2. (1 pt) Solve the equation for $x$  

   \[ 5(x + 7) + 2 = -4(x - 4) - 2 \]

   \[ x = \] 

3. (1 pt) Solve the equation for $t$  

   \[ \frac{8}{3 - t} + \frac{4}{3 + t} + \frac{6}{9 - t^2} = 0 \]

   \[ t = \] 

4. (1 pt) By completing the square, the expression $x^2 + 8x + 87$ equals $(x + A)^2 + B$  

   where $A$ is: \[ \]  

   and $B$ is: \[ \] 

5. (1 pt) By completing the square, the expression $x^2 - 14x + 33$ equals $(x + A)^2 + B$  

   where $A$ is: \[ \]  

   and $B$ is: \[ \] 

6. (1 pt) The equation $x^2 + 2x - 19 = 0$ has two solutions $A$ and $B$ where $A < B$  

   and $A$ is: \[ \]  

   and $B$ is: \[ \] 

7. (1 pt) The equation $4x^2 + 19x + 3 = 0$ has two solutions $A$ and $B$ where $A < B$  

   and $A$ is: \[ \]  

   and $B$ is: \[ \] 

8. (1 pt) The real solution of the equation $x^3 = -27$ is: \[ x = \] 

9. (1 pt) The equation $x^4 - 36 = 0$ has two real solutions $A$ and $B$ where $A < B$  

   and $A$ is: \[ \]  

   and $B$ is: \[ \] 

10. (1 pt) The equation $3x^4 - 3x^3 - 3x^2 = 0$ has three real solutions $A$, $B$, and $C$ where $A < B < C$  

    and $A$ is: \[ \]  

    and $B$ is: \[ \]  

    and $C$ is: \[ \] 

11. (1 pt) Now for some review problems:  

    Find the domain of this function:  

    \[ \sqrt[3]{-4 - 8x} \]

    (which reads the 3th root of $-4 - 8x$).  

    The function is defined on the interval from \[ \] to \[ \].  

    Use INF for infinity or -INF for minus infinity.  

    Similar problems in the book: section 1.1/23-36  

    Now find the domain of this function:  

    \[ \sqrt[4]{-4 - 8x} \]

    (which reads the 4th root of $-4 - 8x$).  

    The function is defined on the interval from \[ \] to \[ \]. 

12. (1 pt) Solve the equation  

    \[ \frac{x + 1}{x - 1} = \frac{-11}{x + 3} + \frac{8}{x^2 + 2x - 3} \]

    Hint: There is only one non-extraneous root.  

    \[ x = \] 

13. (1 pt) The equation $|5x - 25| = 30$ has two solutions.  

    The sum of those two solutions is \[ \] . 

14. (1 pt) The equation $|6x + 24| = 36$ has two solutions.  

    The distance between those two solutions is \[ \] . 

15. (1 pt) Solve the equation  

    \[ (x - 1)^{\frac{3}{2}} (x - 6) + 3(x - 1)^{\frac{1}{2}} = 0 \]

    \[ x = \]