

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:

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

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

$x =$  \_\_\_\_\_