## Wk 13 Monday: Quadratic Inequalities

Solve and graph on the number line:

1.  $x^2 + 6x + 8 < 0$ 

(x+4)(x+2) < 0 set 0 on right, factor left

Plot the critical pts (zeroes)

<del>-4</del> -2

Test a value into the quadratic from each of the three regions.

Test: -10: (-10+4)(-10+2)=48 which is positive (+)

-3: (-3+4)(-3+2)=-1 which is negative (-)

0: (0+4)(0+2) = 8 which is positive (+)



We want the negative

portion because the inequality says < 0 which is negative...so shade the negative portion.



Solution: -4<x<-2

Solution:



2.  $x^2 + 18 - 9x \le 0$ 

Solution:\_\_\_\_\_

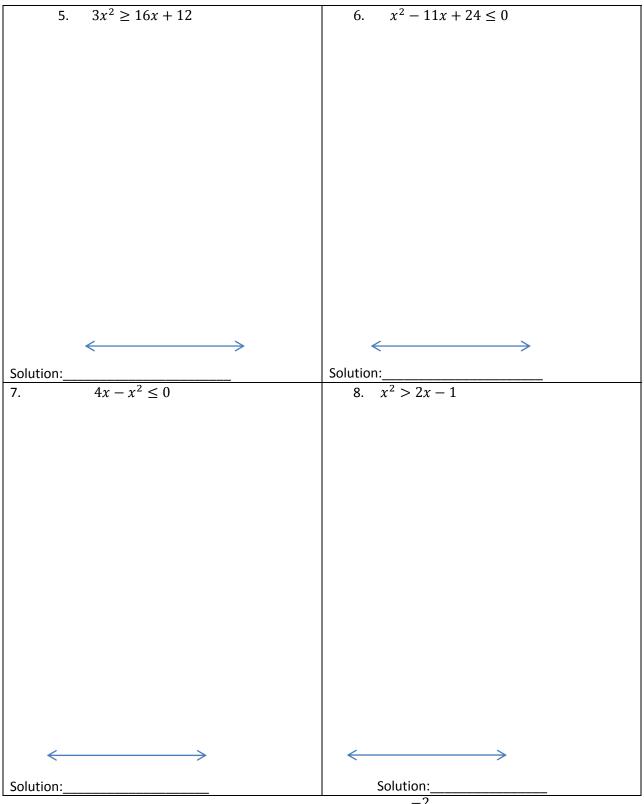
3. 
$$x^2 - 10x + 25 \le 0$$

4. 
$$2x^2 + 6x > -4$$

 $\longleftrightarrow$ 

Solution:

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2. 
$$3 \le x \le 6$$
 3.  $x = 5$  4.  $x < -2$  or  $x > -1$  5.  $x \le \frac{-2}{3}$  or  $x \ge 6$  6.  $3 \le x \le 8$ 

7.  $x \le 0 \text{ or } x \ge 4 \ 8. \ \mathbb{R}, x \ne 1$