Wk 13 Monday:Quadratic Inequalities

Solve and graph on the number line:

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

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

Plot the critical pts (zeroes)

-4   -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 (+)

+   -   +

-4   -2

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

-4   -2

Solution: -4<x<-2

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

Solution:_____

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

Solution:_____

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

Solution:_____

5. $3x^2 \geq 16x + 12$

Solution:_____

6. $x^2 - 11x + 24 \leq 0$

Solution:_____

7. $4x - x^2 \leq 0$

Solution:_____

8. $x^2 > 2x - 1$

Solution:_____

2. $3 \leq x \leq 6$ 3. $x = 5$ 4. $x < -2 \ or \ x > -1$ 5. $x \leq \dfrac{-2}{3} \ or \ x \geq 6$ 6. $3 \leq x \leq 8$

7. $x \leq 0 \ or \ x \geq 4$ 8. $\mathbb{R}, x \neq 1$