Week 5 - Problems

1. Question 1 from Class Notes
Work through Example 1 in section 2.6 on page 208. What is the first step in solving the equation? Is this in fact a rational equation? What is the effect of multiplying with 6?

2. Question 2 from Class Notes
Work through Example 2 in section 2.6 on page 209. What is the first step in solving the equation? What type of equation is left after the first step?

3. Question 3 from Class Notes
After you have worked through Examples 3 and 4 in section 2.6, compare the solution in the textbook with the following approach:
As first step square both sides of the equation. Compare the result with the result after squaring in the example. Explain what you found.

4. Problem 59 in section 2.6 on page 214.

5. Assume that f(x) is a linear function. Consider solving the equation |f(x)| = a. How many solution can this equation have? Is it possible for it to have exactly one solution? What about exactly 3 solutions? What about infinitely many solutions? Make up examples for the different situations.

6. Consider problem 67 in section 2.6 on page 214. Discuss what possible approaches one can use to solve this problem algebraically. What is the best one. (Don't just solve the problem graphically!)

7. Find m so that the inequality 3x – 4 > mx + 5 has the solution set (2, ∞). Is it possible to find m so that the solution set is (-∞, 2)? Explain your reasoning.

8. Graph the functions f(x) = |x-4| and g(x) =|x+4| in the same coordinate system. Then graph the sum (f+g)(x). Explain the shape of the resulting function. Now solve problem 73 in section 2.7 on page 218.
9. Problem 61 in section 2.7 on page 218.

10. Problem 63 in section 2.7 on page 218.

11. Problem 69 in section 2.7 on page 218. Graph all the functions involved and explain your solution in terms of the graphs.

12. Problem 51 in section 2.2 on page 178. If you think the statement is true try to come up with a convincing argument, why it is true. If you think the statement is false, find an example in which it is false.

13. Problem 52 in section 2.2 on page 178. If you think the statement is true try to come up with a convincing argument, why it is true. If you think the statement is false, find an example in which it is false.

14. Problem 53 in section 2.2 on page 178. If you think the statement is true try to come up with a convincing argument, why it is true. If you think the statement is false, find an example in which it is false.

15. Problem 66 in section 2.3 on page 190.

16. Problem 73 in section 2.3 on page 191. If you think the statement is true try to come up with a convincing argument, why it is true. If you think the statement is false, find an example in which it is false.

17. Problem 38 in section 2.4 on page 201.

18. Problem 41 in section 2.4 on page 201.

19. Problem 47 in section 2.4 on page 201.

20. Problem 44 in section 2.4 on page 201.