# Homework 2

This needs to be turned in by: July 8th, at the beginning of class. Please write your work and answers on a separate sheet of paper and box your final answers. Don't forget your name.

1. Simplify:

$$5\sqrt{20x} + 3\sqrt{80x^3}$$

2. What is the conjugate of $3 + 2\sqrt{5}$?

3. Rationalize the denomiators:
(a) $\frac{1+2\sqrt{5}}{3-4\sqrt{7}}$
(b) $\frac{12}{-\sqrt{15}}$

4. Factor $x^2 - 3x - 10$ using any method.

5. Factor $2x^2 - 5x + 3$ using the quadratic formula. What are the two roots?

6. Factor:
(a) $x^2 - 121$
(b) $x^3 - 1331$
(c) $512x^9 + 1$
(d) $9x^3 + 15x^2 - 12x - 20$

7. Simplify:

$$\frac{x^2 + 4x + 4}{x^2 + 6x + 8}$$

8. Simplify:

$$\frac{x^2 - 144}{x^2 + 6x} \div \frac{x^2 - 12x}{x^2 - 36}$$

9. Find the complete solution set

$$(10 - 3x)^2 = 100$$

10. Solve the equation for $T$:

$$Y = \frac{3A - 2B + 5T}{X} - 2$$

11. Find the complete solution set:
(a) $\sqrt{27 - 3x} = \sqrt{11 - 7x}$

(b) $\sqrt{27-13x} = \sqrt{17-8x}$
(c) $|9-8x| = x$

12. Find the complete solution set: (Hint: Square both sides and use the quadratic formula)

$$\sqrt{11x-28} = x$$

13. Are the following True or False?
(a) $5 \geq 5$
(b) $5 > 4$

14. Find the complete solution set. Write your answer in interval notation.
(a) $8 - \frac{1}{10}x \geq -2$
(b) $-12 \leq 2x - 7 < 13$

15. Write the intervals in inequality notation:
(a) $(-\infty, 7)$
(b) $(-1, 1) \cup (3, \infty)$

16. Study Guide, p. 14 #2 A and B

17. Study Guide, p. 14 #3

18. Study Guide, p. 14 #4