

Algebra and Calculus Worksheet: Recitation 1 (9-14-15)

Name: _____

This worksheet is a mix of problems from Prof. Wykes' list of suggested exercises in Homework 1 and 2.

1. Section 1.3: Question 75

Perform the indicated operations and simplify:

$$(3x + 2)^2 + 8(3x + 2) + 12$$

2. Section 1.3: Question 91

Factor the expression completely. Begin by factoring out the lowest power of each common factor.

$$x^{\frac{5}{2}} - x^{\frac{1}{2}}$$

3. Section 1.3: Question 127

Factor the expression completely:

$$5(x^2 + 4)^4(2x)(x - 2)^4 + (x^2 + 4)^5(4)(x - 2)^3$$

4. Section 1.4: Question 27

Perform the necessary operations to simplify the expression:

$$\frac{x^2 + 2x - 15}{x^2 - 25} \cdot \frac{x - 5}{x + 2}$$

5. Section 1.4: Question 35

Perform the necessary operations to simplify the expression:

$$\frac{\frac{x^3}{x+1}}{\frac{x}{x^2+2x+1}}$$

6. **Section 1.4: Question 75**

Simplify the fractional expression:

$$\frac{\frac{1}{(x+h)^2} - \frac{1}{x^2}}{h}$$

7. **Section 1.5: Question 21**

Solve the equation (and simplify):

$$2(1-x) = 3(1+2x) + 5$$

8. **Section 1.5: Question 47**

Find all real solutions of the equation by factoring.

$$x^2 - 7x + 12 = 0$$

9. **Section 1.5: Question 123**

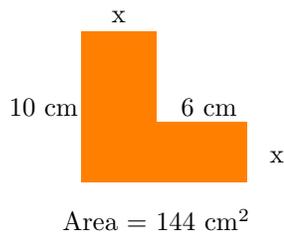
Solve for x (a is a constant...just like any other constant!):

$$x^4 - 5ax^2 + 4a^2 = 0$$

10. **Section 1.7: Question 47 (part (a))**

Find the length x in the figure. The area of the shaded region is given (do **not** assume anything is drawn to scale).

(a)



11. **Section 1.7: Question 69**

Distance, Speed, and Time: Wendy took a trip from Davenport to Omaha, a distance of 300 mi. She traveled part of the way by bus, which arrived at the train station just in time for Wendy to complete her journey by train. The bus averaged 40 mi/h, and the train averaged 60 mi/h. The entire trip took $5\frac{1}{2}$ h. How long did Wendy spend on the train?