Math Xa Lab 1
Algebra Skills
September 25, 2003

Name _____
Section Instructor _____
Collaborators _____
_____

1.

(a) Simplify the expression $2^{\frac{3}{2}}2^{\frac{7}{2}}$.

(b) In general, if a, m, and n are numbers, what does $a^n a^m$ equal?

2. Each of the following equations is, in general, false. For each equation, give a numerical example that disproves the equation. Then simplify the left hand side of each equation correctly.

(a) $(a+b)^2 = a^2 + b^2$

(b) $a^2 + a^2 = a^4$

(c) $\frac{1}{a} + \frac{1}{b} = \frac{1}{a+b}$

(d) $1 + \frac{a}{b} = \frac{a}{a+b}$

3. Factor the following expressions as much as possible.

(a) $x^2 - 16x + 64$

(b) $a^2 - 2ab + b^2$

(c) $4x^2 - 25$

(d) $a^2 - b^2$

(c) $2x^3 + 8x^2 - 42x$

4. Simplify the following expression.

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

5. Solve the following equation for all values of x that satisfy it.

$$\frac{4}{4 - x} = x$$

6. Solve the following equation for all values of x that satisfy it.

$$5x^2 + x = 2$$

7. Solve the following system of equations for all values of A and B that satisfy both equations.

$$\begin{array}{rcrcl} A & - & 2B & = & 7 \\ 4A & + & 3B & = & 6 \end{array}$$

8. Express in words the values of x which satisfy the following inequality.

$$\frac{1}{x+4} \leq 3$$