Algebra 2 and
Wootton Algebra 2/Analysis Summer Review Assignment

This assignment is a review of skills you should have learned that will be needed to be successful in Algebra 2/Analysis next year. You should answer all questions and SHOW ALL WORK. We will expect you to come to class in the fall knowing this material and ready to learn Algebra 2/Analysis.

This assignment will be collected on the third day of school, Wednesday, August 31, 2005.

A. Evaluate each

−18 1. $-3 - 6/2 - 12$ $-3 - 3 - 12 = -18$

−28 2. $-4^2 - 6^3/18$ $-16 - 216/18 \Rightarrow -16 - 12 = -28$

−96 3. $2x^3 - 3x^2 + 5x$ when $x = -3$ $2(-3)^3 - 3(-3)^2 + 5(-3)$
$-54 - 27 - 15$

−17 4. $3ab^2 + 5a^2b - 1$ when $a = 2$ and $b = -2$
$3(2)(-2)^2 + 5(2)^2(-2) - 1$
$24 - 40 - 1$

B. Solve each linear equation

12 1. $-4(3 - x) = 2(x + 6)$

1. $-12 + 4x = 2x + 12$
$2x = 24$
$x = 12$

∅ 2. $2(3x + 6) + 8 = 6x$

2. $6x + 12 + 8 = 6x$
$20 = 0$
$\emptyset$

2 3. $3x - 2(x + 1) = 0$

3. $3x - 2x - 2 = 0$
$x - 2 = 0$
$x = 2$

ℝ 4. $3(x + 2) + 1 = 2x + 7 + x$

4. $3x + 6 + 1 = 3x + 7$
$3x + 7 = 3x + 7$
$\mathbb{R}$

C. Simplify each by doing the indicated operations and combining like terms

$-x^2 - 3x + 1$ 1. $(-3x^2 + 4x - 7) + (2x^2 - 7x + 8)$

$29a^4 - 7a^3 + 4a^2 - 15$ 2. $(39a^4 - 4a^3 + 2a^2 - a - 7) - (10a^4 + 3a^3 - 2a^2 - a + 8)$

$-3x^2y^3 + 6xy^4$ 3. $-3xy^3(x - 2y)$

$-27x^6y^9z^3$ 4. $(-3x^2y^3z)^3$

1 5. $(15a^4b^2c^3)^0$

$\dfrac{16}{ab^3}$ 6. $(8a^3b^2)(2a^{-4}b^{-5})$

$6x^2 - x - 35$ 7. $(3x + 7)(2x - 5)$ $6x^2 - 15x + 14x - 35$

$4x^2 - 36x + 81$ 8. $(2x - 9)^2$

$(2x - 9)(2x - 9) \cdot 4x^2 - 18x - 18x + 81$

D. Factor each completely

$\underline{(x-9)(x+8)}$ 1. $x^2 - x - 72$

$\underline{x(7x^2-4x+8)}$ 2. $7x^3 - 4x^2 + 8x$

$\underline{(a+8)^2}$ 3. $a^2 + 16a + 64$

$\underline{(x-7)(x+7)}$ 4. $x^2 - 49$

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

$\underline{5m(2m^2n^2-3mn+5)}$ 5. $10m^3n^2 - 15m^2n + 25m$

$\underline{(5x+9y)(5x-9y)}$ 6. $25x^2 - 81y^2$

$\underline{(2x-1)(x+5)}$ 7. $2x^2 + 9x - 5$

$\underline{2y(x-5)(x+3)}$ 8. $2x^2y - 4xy - 30y$ $2y(x^2-2x-15)$

E. Solve each by factoring – remember to get the equation = 0 first

$\underline{\{0,6\}}$ 1. $x^2 - 6x = 0$

1. $x(x-6)=0$
$x=0 \quad x=6$

2. $x^2-3x-10=0$
$(x-5)(x+2)=0$
$x=5,-2$

$\underline{\{-2,5\}}$ 2. $x^2 - 3x = 10$

$\underline{\{-4,4\}}$ 3. $x^2 = 16$

3. $\sqrt{x^2}=\sqrt{16}$
$x=\pm 4$

4. $x^2-4x-32=0$
$(x-8)(x+4)=0$
$x=8,-4$

$\underline{\{-4,8\}}$ 4. $x^2 = 4x + 32$

F. Solve each by quadratic formula -   remember:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$\underline{\frac{-5\pm\sqrt{29}}{2}}$ or .19, -5.19   1. $x^2 + 5x - 1 = 0$

1. $x = \frac{-5 \pm \sqrt{5^2-4(1)(1)}}{2(1)}$

$x = \frac{-5 \pm \sqrt{29}}{2}$

$x .19, -5.19$

2. $x^2+10x-9=0$
$x = \frac{-10 \pm \sqrt{100-4(1)(9)}}{2(1)}$
$= \frac{-10 \pm \sqrt{136}}{2}$
$= \frac{-10 \pm 2\sqrt{34}}{2}$
$= -5 \pm \sqrt{34}$
$\approx .83, -10.83$

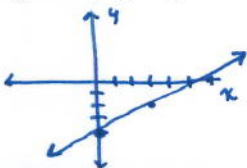$\underline{-5\pm\sqrt{34}}$ or .83, -10.83 2. $x^2 + 10x = 9$

G. Write the equation of each in $y = mx + b$ form

$y = \frac{2}{3}x - 2$ 1. $4x - 6y = 12$

1. $\frac{-6y}{-6} = \frac{-4x+12}{-6}$
$y = \frac{2}{3}x - 2$
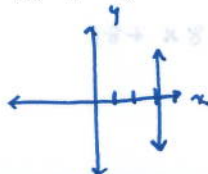
$y = -4x + 3$ 2. $8x + 2y = 6$

2. $\frac{2y}{2} = \frac{-8x+6}{2}$
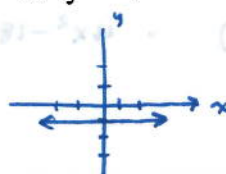$y = -4x+3$

H. Sketch each line on a graph

1. $y = 2/3\ x - 4$ 2. $x = 3$ 3. $y = -1$ 4. $x - 2y = -4$ $y = \frac{1}{2}x+2$