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HOMEWORK #4, MATH 104, FALL 2008

INSTRUCTIONS: WRITE YOUR ANSWERS ON THE HOMEWORK SHEET, AND ATTACH PAGES WITH ALL YOUR WORK TO RECEIVE CREDIT. WRITE ALL COMPLEX SOLUTIONS IN STANDARD FORM.

1. USE THE METHOD OF COMPLETING THE SQUARE TO SOLVE THE EQUATION

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

2. USE THE QUADRATIC FORMULA TO SOLVE THE EQUATION

$$\frac{2}{5}y^2 + \frac{1}{5}y + \frac{3}{5} = 0$$

3. VERIFY THAT FACTORING, COMPLETING THE SQUARE AND THE QUADRATIC FORMULA ALL PRODUCE THE SAME SOLUTIONS FOR THE EQUATION (I MUST SEE ALL WORK ON ATTACHED SHEET!).

$$5x^2 + 3x - 2 = 0$$

4. USE THE PROCESS OF COMPLETING THE SQUARE TO PUT THE FOLLOWING EQUATION IN THE FORM $a\ (x-h)^2 + k = y$.

$$y = 3x^2 - 13x - 10$$

5. USE THE PROCESS OF COMPLETING THE SQUARE TO PUT THE FOLLOWING EQUATION IN THE FORM $(x-h)^2 + (y-k)^2 = r^2$

$$x^2 - 6x + y^2 + 4y - 12 = 0$$

6. SOLVE THE EQUATIONS USING QUADRATIC METHODS.

A. $\dfrac{7}{x^2-5x+6}=\dfrac{2x}{x-3}-\dfrac{x}{x-2}$

B. $x^4+2x^2-3=0$

C. $3x^{2/3}+11x^{1/3}=4$

D. $2-\dfrac{7}{x+6}=\dfrac{15}{x+6^{\,2}}$

E. $2\ \ 4m-3\ ^2-9\ \ 4m-3\ \ =5$

F. $y^3-y^2+9y-9=0$

G. $x^6-64=0$

(HINT: FACTOR AS A DIFFERENCE OF SQUARES AND THEN USE SUM/DIFFERENCE OF CUBES FORMULAS. YOU NEED TO COME UP WITH SIX ROOTS.)

H. $y^{-1}-y^{-1/2}-6=0$