

*Mistakes are a fact of life. It is the response to the error that counts.* NIKKI GIOVANNI

In class work 9 has questions 1 through 5 with a total of 12 points. This assignment is due at the end of the class period (9:55 AM). This assignment is printed on **both** sides of the paper.

1. Find the solution set to  $\frac{2x+3}{4x+1} \leq 1$  by following these steps.

1 (a) Use algebra tools to find an equivalent inequality of the form  $\frac{P(x)}{Q(x)} \leq 0$ , where  $P$  and  $Q$  are polynomials.

1 (b) Find all x-intercepts and all VAs for  $\frac{P(x)}{Q(x)}$ .

1 (c) Put all x-intercepts and VAs on to a number line.

1 (d) Build the chart with columns for the interval, the test number, evaluation at the test number, and the true/false value.

1 (e) Test each interval endpoint for inclusion or exclusion into the solution set.

1 (f) Express the solution set in either interval notation, pictorially, or set builder notation.

2. Find the vertex of each parabola.

1 (a)  $y - 2 = 5(x + 1)^2$ .

1 (b)  $y = 3x^2 + 2x + 9$

1 (c)  $y = x(1 - x)$

3. Morwenna grows and sells organic mustard greens. The number  $q$  of bunches of greens she can sell in a day is related to the selling price of  $p$  dollars per bunch by  $q = 20 - 2p$ .

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- (a) Express the *revenue*  $R$  she gets for selling  $q$  bunches of greens for  $p$  dollars per bunch as a function of the selling price.

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- (b) Find the selling price  $p$  that will maximize Morwenna's daily revenue.

4. Sketch a pretty good graph of  $y = (x - 1)^2(x + 1)^2$ .

- 1 5. Given that  $P$  is a third degree polynomial such that (a)  $P$  has a zero with multiplicity of 2 at 5; (b)  $P$  has a zero with multiplicity 1 at -2; and  $P(0) = 1$ , find an equation for  $P$ .