

## Worksheet #1 16A

09/07

- 1) Let  $y = 3x^2 - 12x + 5$  be a parabola  $P$ . If  $L$  is a line passing by the vertex of  $P$  and with slope 3, find the equation for  $L$  and then find all the intersection points of  $L$  and  $P$ .
- 2) The producing costs of a clothing firm is a fix rate of 50 dollars plus 10 dollars per garment produced. Find the selling price of each garment for the firm to break even if they sell 20 garments. Then, find the profit that will be generated by each extra garment sold.
- 3) Find the domain of the following functions
- a)  $f(x) = \frac{1}{x^2 - 5x + 4}$       b)  $g(x) = \sqrt{x^2 + x + 2}$
- c)  $h(x) = \sqrt{\frac{x^2 + x + 2}{x^2 - 5x + 4}}$
- 4) Solve the following equations
- a)  $3^{x^2+1} = 9^{2x}$       b)  $4^x = 3^{2x}$       c)  $2^x + 2^x = \left(\frac{1}{16}\right)^x$
- 5) Simplify the following expressions
- a)  $\log_5 4^2$       b)  $(\log_7 11)(\log_{11} 49)$       c)  $2(\log_2 3)(\log_9 16)$
- d)  $e^{x(\ln x)}$