

## Math-1003b Exam #2

Name: \_\_\_\_\_

This exam is closed book and notes. You may use a scientific calculator; however, no other electronics are allowed. Show all work; there is no credit for guessed answers. All answers must be in factored form, where appropriate. All numerical answers must be expressed using exact values, unless you are specifically asked for an approximate (decimal) value. All intervals must be expressed in interval notation.

- 1). A new rock band is performing at the SJSU event center. The band wants to spread some posters around town advertising the performance. The printer says that the cost to print each poster varies directly with the area of the poster and inversely with the number of posters ordered.
  - a). Let  $p$  = the cost to print each poster,  $A$  = area of each poster and  $n$  = number of posters printed. Write an equation that expresses the cost of each poster in terms of  $A$  and  $n$ .
  - b). What is the value of the constant of proportionality if the price per poster is \$4 when printing 100 posters of size 80 square inches each?
  - c). The band decides that they would like the posters to be a bit bigger and that they don't need 100 of them. How much is the price per poster when printing 80 posters of size 160 square inches each?

2). Solve the compound inequality for  $x$ :

$$-6 < -2(x - 1) - 5 \leq 2$$

3). Solve the following system of inequalities for  $x$ :

$$-3(x - 7) > 15 \quad \text{or} \quad x + 2 \leq 5$$

4). Solve for  $x$ . Your work must include a test point table for full credit:

$$x^2 + 2x - 15 > 0$$

5). Solve for  $x$ . Your work must include a test point table for full credit:

$$\frac{x+1}{x-2} \leq 0$$

6). Solve for  $x$ :

$$2|3x - 1| - 2 = 6$$

7). Solve for  $x$ :

$$|5x + 3| = -2$$

8). Solve for  $x$ :

$$2|7x - 1| + 4 \leq 6$$

9). Solve for  $x$  (Hint: Look at the previous problem):

$$2|7x - 1| + 4 > 6$$

- 10). Solve the following system of inequalities by graphing. Be sure to label all key points and make it absolutely clear which region(s) of the plane you are selecting for your answer:

$$\begin{cases} x + y > 3 \\ y \leq 1 \end{cases}$$

