Name ____________________ Rec. Instr. ____________________

Rec. Time ____________________

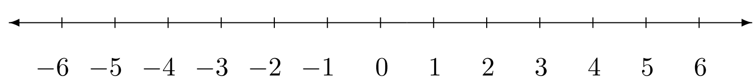
COLLEGE ALGEBRA

Exam I
September 12, 2006

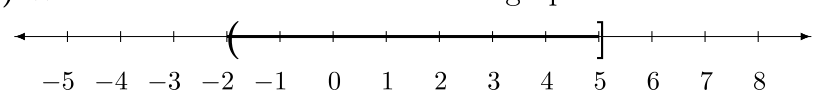
Page 1 (16 pts.)	Page 2 (32 pts.)	Page 3 (28 pts.)	Page 4 (24 pts.)	TOTAL (100 pts.)

Below you will find 8 problems, with their maximum scores. Solve the problems in the space provided. When writing a solution to a problem, **show all work**. No books or notes are allowed.

Problem 1 (8 points). **(a)** Write the set $\{x \,|\, -2 \le x < 1\}$ in interval notation, then graph the interval on the number line.



(b) Write the interval notation for the graph:



Problem 2 (8 points). Rationalize the denominator in $\dfrac{1+2\sqrt{3}}{2-\sqrt{3}}$, then simplify.

Problem 3 (8 points). Simplify $\dfrac{16x^7y^{-2}}{8x^3y^{-7}}$.

Problem 4 (24 points). Perform the indicated operations and simplify.
(a) $(x^4 - 5x^3 + 7x) - (2x^3 + 4x^2 - 3x - 2)$.

(b) $(x^2 - 2x - 1)(2x - 3)$.

(c) $(3x^2 - 2y)^2$.

Problem 5 (28 points). Factor the following polynomials completely:

(a) $x^3 - 2x^2 - 4x + 8$

(b) $36x^2 - 60x + 25$

(c) $25x^2 - 4$

(d) $4x^2 + 4x - 3.$

Problem 6 (8 points). Assume both x and y are positive. Simplify $\left(\dfrac{8x^2y^{5/6}}{x^{-1}y^{-1/6}}\right)^{1/3}$, then convert to radical notation.

Problem 7 (8 points). Find the domain of $\dfrac{8x^2-5}{x^2+x-6}$.

Problem 8 (8 points). Perform the indicated operation, then simplify.

$$\frac{5}{y^2-y-6}-\frac{1}{y-3}.$$