## QUIZ 3 - MATH 152 YOUR NAME:

Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Use an appropriate trigonometric substitution to evaluate the integral  $\int \frac{1}{x^2\sqrt{9-x^2}} dx$ .

2. Please, follow the instructions carefully. Consider the rational function  $f(x) = \frac{12x^5 - 12x^4 + 3x^3 + 14x^2 - 16x + 5}{4x^3 - 4x^2 + x}.$ 

(a) Perform the long division to simplify the rational expression defining y = f(x).

(b) Factor the denominator of the remaining fraction.

(c) Break the remaining fraction into partial fractions.

(d) Use the method of partial fractions to compute the integral  $\int f(x) dx$ .