READING ASSIGNMENT 08

NAME: _____

§8.3 (Trig substitution), §8.5 (Partial fractions)

Due 12 July 2018

LEARNING OBJECTIVES

By the end of this lesson, you will be able to:

- Compute integrals of the form $\int (ax^2 + bx + c)^{n/2}\, dx$ using trigonometric substitution.
- Compute integrals of rational functions using partial fractions.

REVIEW

- Review completing the square and the definitions of sine, cosine, and tangent (i.e. $\sin(x)$ =opposite/hypotenuse, etc.).
- Review polynomial long division.

READING

- Read section 8.3
- Read section 8.5

QUESTIONS

(1) If $\tan^{-1}(\theta) = \frac{a}{b}$, then what is $\sin(\theta)$?

(2) Describe the strategy used to integrate $\int \frac{P(x)}{Q(x)}\,dx$ when:

(a) The degree of $P(x)$ is larger than the degree of $Q(x)$.

(b) The degree of $Q(x)$ is larger than the degree of $P(x)$, and $Q(x)$ splits into distinct factors of the form $(x-a)$.

(c) The degree of $Q(x)$ is larger than the degree of $P(x)$, and $Q(x)$ has an irreducible quadratic factor (x^2+a).