Name_____

CALCULUS JOURNAL
APPLICATIONS OF INTEGRATION

1. (a) To find the particular solution of a differential equation you must _____

    while the general solution _____

2. The marginal revenue/cost function is found by _____

    _____.

3. Hyperbolic functions are created with combinations of _____ and _____ and are related to trig

    functions through the use of _____.

4. (a) The curve that results from letting a cable hang loosely between two poles is called a _____

    and its equation is _____.

    (b) This curve is used in engineering applications because_____

    _____.

5. (a) The general equation for work is _____.

    (b) Integration is used to calculate work when _____.

6. (a) Hooke's Law is used when to find the force exerted by a _____.

    (b) When using Hooke's Law, you must first determine _____ which is the _____.

7. (a) ρ represents the _____ of a fluid and is measured with the units _____

    or _____.

    (b) The limits of integration when pumping a fluid out of a tank are determined by _____

    _____

8. (a) A fluid is_____.

    (b) Fluid force is _____

    while fluid pressure is _____.

    (c) The units typically used to measure fluid force are _____

    while the units used to measure fluid pressure are _____.

    (d) Pascal's Principle states that _____

    _____.

9. When finding the fluid force of a vertical object, you determine what numbers to integrate

    between by _____.

    (c) It is necessary to set up a proportion when calculating work or fluid force if _____

    _____ is changing.

10. List the following rules, facts, or formulas. Explain the meaning of all variables in a formula!
    a. Mathematical relationship between position, acceleration, and velocity

b. Definitions of sinh x and cosh x.

c. Derivatives of 6 hyperbolic trig functions

d. Work done by a variable force & the two common units of measure for work. Label all variables with their meaning.

e. Hooke's Law. Label all variables.

f. Two constants for weight density of water.

g. Work to pump fluid out of a tank. Label all variables.

h. Fluid force on a vertical object. Label all variables.