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## CALCULUS JOURNAL APPLICATIONS OF INTEGRATION

1. (a) The general solution of a differential equation contains $\qquad$ while a particular solution $\qquad$
2. The marginal revenue/cost function is $\qquad$ of the original revenue/cost function.
3. (a) Hyperbolic functions are related to the trig functions, through the use of $\qquad$ .
4. (a) The curve that results from letting a cable hang loosely between two poles is called $\qquad$ .
(b) This curve is used in engineering applications because $\qquad$
$\qquad$ .
5. (a) Integration is used to calculate work when $\qquad$ .
6. The limits of integration when pumping a fluid out of a tank are determined by $\qquad$
7. (a) A fluid is $\qquad$ .
(b) Fluid force is while fluid pressure is $\qquad$ .
(c) The units typically used to measure fluid force are $\qquad$ while the units used to measure fluid pressure are $\qquad$ .
(d) Pascal's Principle states that $\qquad$
(e) When finding the fluid force of a vertical object, you determine what numbers to integrate between by $\qquad$ .
8. It is necessary to set up a proportion when calculating work or fluid force if $\qquad$
$\qquad$ is changing.
9. 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
e) Hooke's Law
f) Work to pump fluid out of a tank
g) Fluid force on a vertical object
