

Name: _____

Period: _____ Date: _____

DEVIL  PHYSICS
BADDEST CLASS ON CAMPUS

GIANCOLI READING ACTIVITY

Section 10-3 to 10-6 (4 points)

1. Objectives for Giancoli Lsn 10-3: Pressure in Fluids, Lsn 10-4: Atmospheric Pressure and Gauge Pressure, Lsn 10-5: Pascal’s Principle, Lsn 10-6: Measurement of Pressure: Gauges and Barometers
 - a. Know the relationship between pressure, force and area.
 - b. Know the relationship between fluid pressure, density and height (or depth) of the fluid.
 - c. Understand that fluid exerts a pressure in all directions.
 - d. Understand that fluid pressure at equal depths within a uniform liquid is the same.
 - e. Understand that pressure exerts a pressure perpendicular to the surface it is in contact with.
 - f. Know the difference between gauge pressure and total pressure and solve problems involving both of them.
 - g. Apply Pascal’s principle to solve problems involving ‘mechanical advantage’.
 - h. Name three different pressure gauges and how they work.
 - i. Convert different units of pressure.

2. Read sections 10-3 to 10-6 in your textbook.

3. Define the following terms:

- a. pressure _____

- b. pascal _____

- c. pressure head _____

- d. atmosphere (the unit) _____

- e. bar (the unit, not the drinking establishment) _____

- f. gauge pressure _____

- g. Pascal's principle _____

- h. manometer _____

- i. torr _____

- j. barometer _____

4. Answer the following questions:

- a. What is the SI unit for pressure and what is its 'official name' _____

- b. From the inside front cover of your book, give the relationship between atm's, bar's, lb/in², torr's, and Pa's _____

- c. In what direction is fluid pressure exerted? _____
- d. How is the direction of the force due to pressure related to the contact surface? _____

- e. Give an equation for pressure in addition to $P = \frac{F}{A}$ _____
- f. Explain the relationship, $F = ma = \rho Ahg$. _____

- g. Pressure in a liquid is directly proportional to what two things? _____

- h. What can be said about the pressure at equal depths within a uniform liquid? _____

- i. What is the assumption/approximation made in equation 10-3a? _____

- j. What equation can be used to determine difference in pressure between two separate depths? _____

- k. Atmospheric pressure is 101,300 N/m². How can the human body withstand such pressure? _____

l. If you fill up your car tire and it reads 35psi, is that the actual pressure in the tire? Why or why not?

m. Give three versions of the equation for Pascal's principle. _____

n. Give an example of the use of Pascal's principle in a car. _____

o. Explain the formula, $P = P_0 + \rho gh$ _____

5. This assignment may be typed or neatly printed. Drawings may be freehand, but try to make use of the 'Shapes' or 'Insert Clipart' functions of MS Word. If you submit this assignment electronically, the filename must be in the following format, "LastnameFirstinitialPerXReadActX-X". You **do not** need include a copy of these instructions with the assignment you hand in.