*To receive credit you must include the formula, work with units, and answer with units. Remember to use sig. figs. You can use the back of this paper to complete the problems.

Pressure Calculations

Directions: Use the formulas for "Pressure" to solve the problems. Show all your work, including writing the formula used in each problem.

Formulas: P = Force/Area
            Force = Pressure X Area
            Area = Force/Pressure

P=F/Area= N/m²=**Pa**   or **N/cm²**

F=P x Area =**N**   Area=F/P=**m² or cm²**

1. The air in an automobile tire exerts a force of 120 Newtons over an area of 2 cm². What is the pressure in the tire?

2. A woman exerts a force of 200 N on the heel of her shoe, which has an area of 1 m². What is the pressure of the heel on the floor?

3. Air exerts a force in a bicycle tire of 600 N. The pressure is exerted over an area of 50 m². What is the pressure in the tire?

4. A force of 10,000 Newtons exerts a pressure of 20 Pascals. What is the area?

5. A basketball player, who weighs 1,000 Newtons, exerts a pressure of 150 Pascals on the floor. What is the area of his shoe?

6. A tennis player exerts a force on the ball of 10,700 Newtons. The pressure on the ball is 9000 Pascal. What is the area of the ball hit by the racket?

7. The pressure exerted by the expanding gas in a rocket is 150,000 Pascal. It is exerted on an area of 4 m². What is the force exerted by the gas?