Name:_____ Date:_____
PCH: Modeling with Functions Practice Packet 2 Ms. Loughran

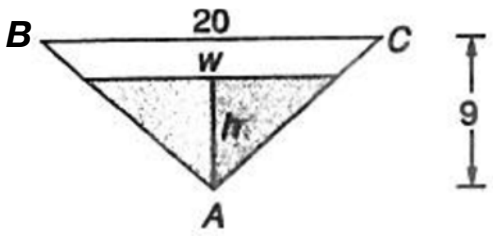
1. The base of an isosceles triangle is half as long as the 2 equal sides. Write the area of the triangle as a function of the length of the base.

2. A rectangle is inscribed between the x axis and the parabola $y = 36 - x^2$ with one side along the x axis. Write the area of the rectangle as a function of x.

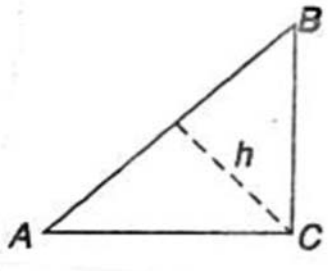
3. The height of a right circular cylinder equals its diameter. Write the volume of the cylinder as a function of its radius.

4. A circle is inscribed in a square of side s. Write the area of the circle as a function of s.

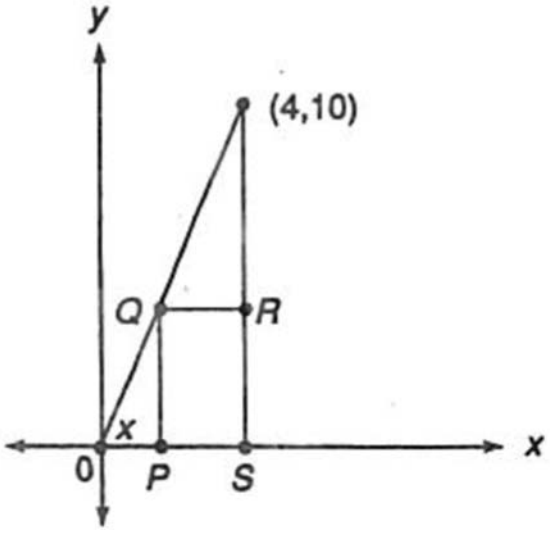
5. In the figure, the shaded triangle is similar to triangle ABC. If $BC = 20$ and the altitude of triangle $ABC = 9$, express w as a function of the altitude h of the shaded triangle and express the area of the shaded triangle as a function of h.



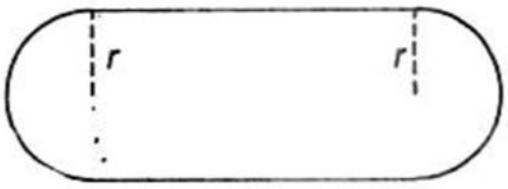
6. Triangle ABC is an isosceles right triangle with right angle at C. h is the measure of the perpendicular from C to side AB. Express the area of triangle ABC as a function of h.



7. Express the area of rectangle $PQRS$ as a function of $x = OP$.



8. An athletic field is semicircular at each end as shown. If the radius of each semicircle is r, and if the total perimeter of the field is 400 meters, express the area of the field in terms of r.



Review

9. Graph: $f(x) = \begin{cases} x^2 & if\ x \leq 0 \\ \sqrt{x} & if\ x > 0 \end{cases}$