

Name: _____

Panther ID: _____

Worksheet - Nov. 3

MAT 3501

Fall 2016

1. Let $\triangle ABC$ be a right angle triangle with the right vertex at A . Draw the altitude AD , with D on the side BC .

(a) Use similarity to find the lengths of the segments $|BD|$, $|DC|$ in terms of the lengths a, b, c of the sides of the triangle.

(b) Show that part (a) gives you one proof of the Pythagorean's Theorem.

(c) (For home:) Find (and understand) one other proof of Pythagorean Theorem (there are many involving areas).

2. (Problem 4 from section 5.10, page 213 text.) We have three circles of radii 8, 10 and 12, each of which is tangent to the other two (like three different-size coins on a table, each touching the other two). Find the area of the region between the three circles to the nearest tenth.

3. Let $\triangle ABC$ be an arbitrary triangle. Let AD be the angle bisector of the angle A , with D on the side BC .

(a) Show that $|DB|/|DC| = |AB|/|AC|$. (This result is sometimes referred to as the "Angle Bisector Theorem")

(b) Use part (a), to find the lengths of the segments $|BD|$, $|DC|$ in terms of the lengths a, b, c of the sides of the triangle.