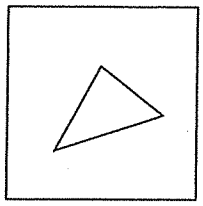
CLASS SET

Open Investigation 3.1

THE PERPENDICULAR BISECTORS OF THE SIDES OF A TRIANGLE

Step 1: Draw a large acute scalene triangle on your patty paper.



Step 2: Fold to construct the perpendicular bisector of each side of your triangle.

Step 3: Repeat steps 1 and 2 with an obtuse triangle. (If you have difficulty getting the perpendicular bisectors to intersect on the patty paper, try relocating your triangle.)

What seems to be true about the perpendicular bisectors of the sides of a triangle? Write your conjecture.

PPC 7 _____

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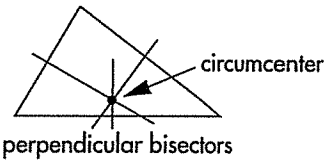
Definition: The point of intersection of the three perpendicular bisectors of the sides of a triangle is called the **circumcenter** of the triangle.



What appears to be special about the point of intersection of the perpendicular bisectors?

Step 4: Use another patty paper to find out which distances from the circumcenter of a triangle to the edge of the triangle are the same.

Write your conjecture.

PPC 8 _____

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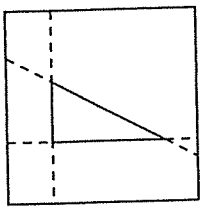
Where is the circumcenter of your acute triangle located? Where is the circumcenter of your obtuse triangle located? Compare with others around you and see if they had the same results. If the circumcenter is in the interior of acute triangles and in the exterior of obtuse triangles, where do you think it is located in right triangles? Test your conjecture.

Open Investigation 3.1 continued

THE PERPENDICULAR BISECTORS OF THE SIDES OF A TRIANGLE

Step 5: Fold to get a right angle. Fold a third side to get a right triangle. Draw the right triangle on the folds.



Step 6: Fold the perpendicular bisectors of the sides of the triangle.

Where is the circumcenter of your right triangle located? Did your result match your original conjecture? Write a conjecture about the location of the circumcenter of a right triangle.

PPC 9

Write *Perpendicular Bisectors* on these patty papers and save them for Investigation 3.5.