

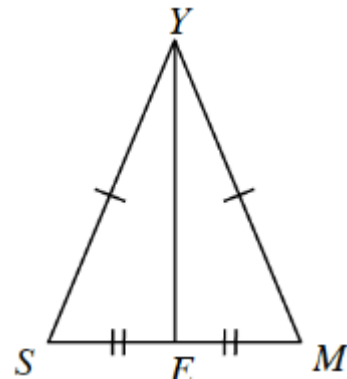
Name: \_\_\_\_\_

Period: \_\_\_\_\_ Date: \_\_\_\_\_

### Homework 2.1.2

1. In an isosceles triangle, the two angles opposite the congruent sides are called the **base angles**. You may have learned in a previous course that the base angles of an isosceles triangle are always congruent. Now you will prove it! In the diagram at right,  $\triangle SYM$  is an isosceles triangle, and point  $E$  is the midpoint of  $\overline{SM}$ .

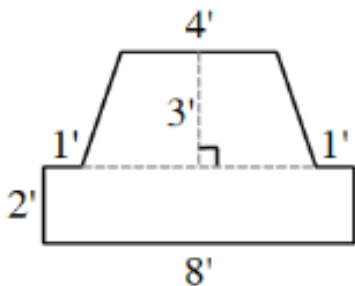
- a. Make a flowchart to prove that the base angles of  $\triangle SYM$  are congruent, that is, prove that  $\angle S \cong \angle M$ .



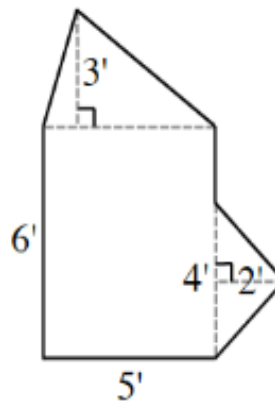
- b. Would your proof work for any isosceles triangle? State your findings as an if-then statement and add it to your Theorem Graphic Organizer.

2. Determine the area of each of the following figures. Assume that all angles that look like right angles are right angles.

a.



b.



3. One goal of this course will be to review and enhance your algebra skills. Solve for  $x$  in each equation below, show and justify all steps leading to your solution, and check your answer.

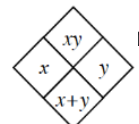
a.  $34x - 80 = 10x - 8$

b.  $4x - 5 = 4x + 10$

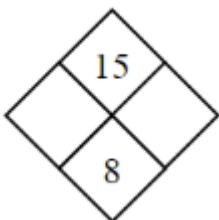
c.  $3(x - 5) + 2(3x + 1) = 41$

d.  $-2(x + 4) + 6 = -3$

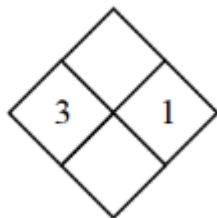
4. Complete each of the Diamond Problems below. The pattern used in the Diamond Problem at right.



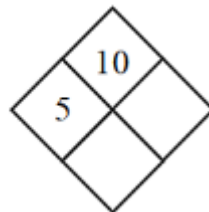
a.



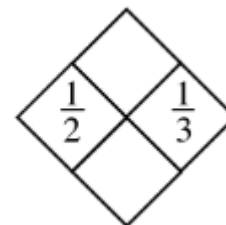
b.



c.

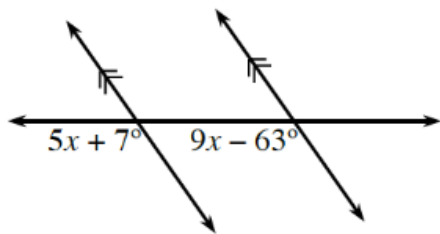


d.



5. Use your knowledge of angle pair relationships to write an equation and solve for  $x$  in the diagrams below. Then calculate the measures of the labeled angles. Justify your solutions by naming the theorem.

a.



b.

