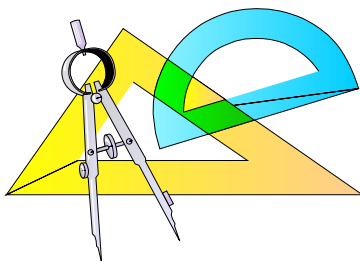


INVESTIGATION #3

Altered Shapes



- Task 1:** Draw a trapezium on a piece of paper. Make it between five and ten centimetres in width and length. Label it trapezium MAGI. Measure all of MAGI's sides and angles and neatly write these measurements on your diagram. Now put a dot on your page somewhere about 10cm away from the trapezium. Draw lines connecting this dot to each vertex of the trapezium. Find and mark the middle point of each of these four lines labelling these middle points B, A, R, and T. Connect up these middle points to form quadrilateral BART. Measure all of BART's sides and angles and neatly write these measurements on your diagram. Write about any **similarities** you see between MAGI and BART.
- Task 2:** Repeat this for rectangle HOME on a new piece of paper. Call the new shape MARG. Repeat this for triangle NED. Call the new shape SAL. Don't forget to write about the similarities you find.
- Task 3:** Repeat the procedure for rhombus LISA but instead of finding the middle point of the connecting lines find the points one third the way from the dot to the vertices of LISA. Call the new shape BURN. Don't forget to write about the similarities you find.



To find out any special relationships your drawings must be accurate and neat. The bigger they are the easier it is to find things.

ASSESSMENT TASK

On the following page is a drawing of the trapezium SKIN.

Measure all of SKIN's sides and angles and neatly write the measurements on the diagram.

Now draw lines connecting P to each vertex but continue the line through the vertex so that it almost reaches the other side of the page.

Measure the distance from P to each vertex.

Double this distance and put a mark this many units along the line from P.

Repeat this for each vertex.

Connect up the points and call your new quadrilateral PATY.

Measure all of PATY's sides and angles and write these measurements on your diagram.

What do you notice about the angles of SKIN and PATY?

What about the side lengths of the two quadrilaterals?

How does the size of the two shapes compare?

In your investigating you should have found that if you marked points half way along the line from P to each vertex, you ended up with a quadrilateral the same as the one you started with, only half the size. When you marked points one third of the way along the line from P to each vertex you ended up with a quadrilateral one third the size of your original. Can you see any connections like this for the quadrilaterals you have just drawn?. Explain your findings.

Diagram page

P.

