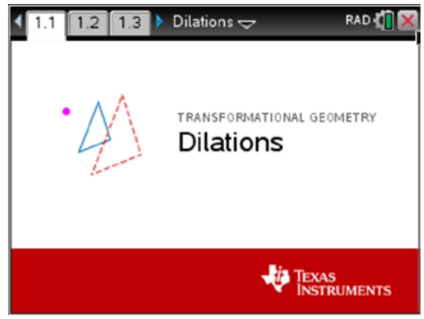
Dilations Lesson 6: Self-Assessment

Name ______________

Student Activity

Class ______________

In this lesson, you will be given the opportunity to summarize, review, explore and extend ideas about Dilations.
Open the document: *Dilations.tns.*



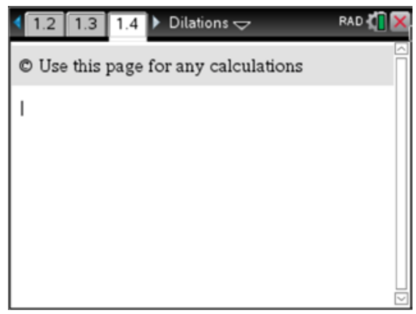
PLAY INVESTIGATE EXPLORE DISCOVER

It is important that the Dilations Tour be done before any Dilations lessons.

Move to page 1.4.

On the handheld, press ctrl ▶ and ctrl ◀ to navigate through the pages of the lesson.
On the iPad®, select the page thumbnail in the page sorter panel.

This activity will be a self-assessment of the ideas explored in earlier lessons.
First, use the area below question 1 to make a sketch where ΔXYZ has been dilated about point A with a scale factor of 1.5.
Use the calculator application on page 1.4 as needed for any calculations.



1. Sketch the desired dilation (use a straightedge).

2. If $m\angle X = 20^o$, then $m\angle X' =$ ___________

3. If $YZ =$ 8 cm, then $Y'Z' =$ ___________

4. If $X'Z' =$ 30 in, then $XZ =$ ___________

5. If the perimeter of ΔXYZ is 60 cm, then the perimeter of $\Delta X'Y'Z'$ $=$ __________

6. Calculate the following ratios. Write your answers in decimal notation rounded to three decimal places and also as fractions.

   a. $\dfrac{perimeter\left(\Delta X'Y'Z'\right)}{perimeter\left(\Delta XYZ\right)} =$ ____________________

   b. $\dfrac{area(\Delta X'Y'Z')}{area(\Delta XYZ)} =$ ____________________

   c. $\dfrac{perimeter\left(\Delta XYZ\right)}{perimeter\left(\Delta X'Y'Z'\right)} =$ ____________________

7. If the area of ΔXYZ = 72 in^2, then the area of $\Delta X'Y'Z'$ $=$ __________

8. What is true about the segments $\overline{XZ}$ *and* $\overline{X'Z'}$?

   ____

9. The slope of $\overline{XY}$ is $-\dfrac{3}{4}$. List another segment and its slope.

   ____

10. If $AX = 10cm$, then $AX' =$ __________ *and* $XX' =$ __________

11. Calculate the ratios. Write your answers in decimal notation rounded to three decimal places and also as fractions.

$a.\ \dfrac{AX'}{AX} =$ __________

$b.\ \dfrac{AY}{AY'} =$ __________

$c.\ \dfrac{perimeter\left(\Delta X'Y'Z'\right)}{perimeter\left(\Delta XYZ\right)} =$ __________

$d.\ \dfrac{area\left(\Delta XYZ\right)}{area\left(\Delta X'Y'Z'\right)} =$ __________

$e.\ \dfrac{XZ}{X'Z'} =$ __________

$f.\ \dfrac{area\left(\Delta X'Y'Z'\right)}{area\left(\Delta XYZ\right)} =$ __________

$g.\ \dfrac{m\angle X}{m\angle X'} =$ __________

$h.\ \dfrac{m\angle Z'}{m\angle Z} =$ __________

12. If point A is at the origin, answer the following questions.
    a. If the coordinates of X are $(6,-12)$, then the coordinates of X' are ____________
    b. If the coordinates of Z' are $(6,-12)$, then the coordinates of Z are ____________
    c. If the coordinates of Y are $(-7,11)$, then the coordinates of Y' are _____________
    d. If the coordinates of X' are $(-18,24)$, then the coordinates of X are ____________

13. If point A were to coincide with point X:
    a. Which pairs of sides will overlap? ____________________
    b. What is the other pair of sides and what is true about these sides? _____________________
    c. What is true about point X'? _____________________

14. Check answers to the questions above:

    Move to page 1.3 (ctrl ◀).

    Press menu to open the menu on the handheld. (On the iPad, tap on the wrench icon to open the menu.) Press 1 (1: Templates) then 7 (7: Every Option On).

    Change the Scale Factor (×) to 1.5.

    Next Dilate the triangle about point P with a scale factor of 1.5 (or D).

    Use the features on this page to test your answers, make corrections, and validate what you have learned.

15. List the properties that have been discovered about dilating a triangle about a point with a scale factor. Make sketches and illustrate with examples as necessary.