## Unit 3 Lesson 3: Measuring Dilations

### 1 Dilating Out (Warm up)

#### Student Task Statement

Dilate triangle $FGH$ using center $C$ and a scale factor of 3.



#### Activity Synthesis



### 2 All the Scale Factors

#### Student Task Statement

Here is a center of dilation and a triangle.



1. Measure the sides of triangle $EFG$ (to the nearest mm).
2. Your teacher will assign you a scale factor. Predict the relative lengths of the original figure and the image after you dilate by your scale factor.
3. Dilate triangle $EFG$ using center $C$ and your scale factor.
4. How does your prediction compare to the image you drew?
5. Use tracing paper to copy point $C$, triangle $EFG$, and your dilation. Label your tracing paper with your scale factor.
6. Align your tracing paper with your partner’s. What do you notice?

### 3 What Stays the Same?

#### Student Task Statement

1. Dilate quadrilateral $ABCD$ using center $P$ and your scale factor.
* 
1. Complete the table.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| * Ratio
 | * $\frac{PA^{′}}{PA}$
 | * $\frac{PB^{′}}{PB}$
 | * $\frac{PC^{′}}{PC}$
 | * $\frac{PD^{′}}{PD}$
 |
| * Value
 |  |  |  |  |

1. What do you notice? Can you prove your conjecture?
2. Complete the table.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| * Ratio
 | * $\frac{B^{′}A^{′}}{BA}$
 | * $\frac{C^{′}B^{′}}{CB}$
 | * $\frac{D^{′}C^{′}}{DC}$
 | * $\frac{A^{′}D^{′}}{AD}$
 |
| * Value
 |  |  |  |  |

1. What do you notice? Does the same reasoning you just used also prove this conjecture?

#### Activity Synthesis

$PC:PC^{′}=3:1$, $BC:B^{′}C^{′}=2:\frac{2}{3}$



#### Images for Activity Synthesis





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