TOPIC 12-4: CHANGING DIMENSIONS

How are perimeter & area affected in polygons and circles when dimensions are changed?

PART 1: EFFECTS OF CHANGING ONE DIMENSION

EXAMPLE 1: The base of a parallelogram is 12 meters and the height is 9 meters. Describe the effect on the area of the parallelogram if the height is doubled.

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EXAMPLE 2: A triangle has vertices at A(1, 1), B(6, 1) and C(3, 5). Describe the effect on the area if the base is halved.
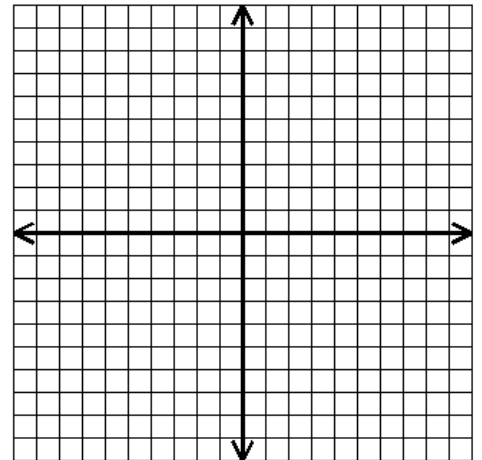
Effects of Changing One Dimension	
Change in Dimensions	Area

PART 2:
EFFECTS OF CHANGING DIMENSIONS PROPORTIONALLY

EXAMPLE 3: The length of a rectangle is 8 inches and its width is 3 inches. Describe the effect on the perimeter and area if both dimensions are multiplied by 5.

Effects of Changing Dimensions Proportionally		
Change in Dimensions	Perimeter	Area

When all the dimensions are changed proportionally, the figure will be similar to the original figure.

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PART 3: EFFECTS OF CHANGING AREA

EXAMPLE 4: A square has a side length of 5 cm. If the area is quadrupled, what happens to the side length?

PART 4: EFFECTS OF CHANGING BY DIFFERENT FACTORS

EXAMPLE 5: A rhombus has a diagonal that is 4 cm and a diagonal that is 5 cm. Describe the effect on its area if the shorter diagonal is doubled and the other is tripled.

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NOW YOU TRY!
EXAMPLE 6: The height of a rectangle is doubled. Describe the effect on its area.

EXAMPLE 7: The base and height of a triangle are tripled. Describe the effect on its perimeter and area.

EXAMPLE 8:   A square has a perimeter of 32 mm. If the area is multiplied by $\frac{1}{4}$, what happens to the side length?

EXAMPLE 9: The base of a parallelogram is doubled and the height is multiplied by 5. Describe the effect on its area.