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RCS = ratio of perimeters  
 $RCS^2 =$  ratio of areas  
ratio of corresponding angles = 1:1

Date \_\_\_\_\_  
Geometry

## Ratio of Corresponding Sides

1. The ratio of the corresponding sides of two similar polygons is 3:1. Find the ratio of their:

- a) perimeters  $3:1$   
b) areas  $3^2:1^2 = 9:1$   
c) angles  $1:1$

2. The ratio of corresponding sides of two similar polygons is 2:7. Find the ratio of their:

- a) perimeters  $2:7$   
b) areas  $2^2:7^2 = 4:49$   
c) angles  $1:1$

3. The ratio of the perimeters of two similar polygons is 5:2. Find the ratio of their:

- a) corresponding sides  $5:2$   
b) areas  $5^2:2^2 = 25:4$   
c) angles  $1:1$

4. The ratio of the areas of two similar polygons is  $\sqrt{9:4}$ . Find the ratio of their:

- a) corresponding sides  $3:2$   
b) perimeters  $3:2$   
c) angles  $1:1$

5. Two triangles are similar, and the ratio of each pair of corresponding sides is 2 : 1. Which statement regarding the two triangles is *not* true?

- 1) Their areas have a ratio of 4 : 1.  $2^2:1^2$  ✓  
2) Their altitudes have a ratio of 2 : 1. ✓  
3) Their perimeters have a ratio of 2 : 1. ✓  
4) Their corresponding angles have a ratio of 2 : 1.  $1:1$  ✗

6. Given  $\triangle ABC \sim \triangle DEF$  such that  $\frac{AB}{DE} = \frac{3}{2}$ . Which statement is *not* true?

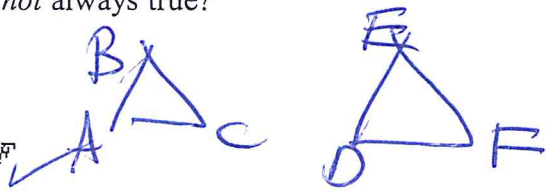
- 1)  $\frac{BC}{EF} = \frac{3}{2}$  ✓  
2)  $\frac{m\angle A}{m\angle D} = \frac{3}{2}$  ✗  $1:1$   
3)  $\frac{\text{area of } \triangle ABC}{\text{area of } \triangle DEF} = \frac{9}{4}$   $(\frac{3}{2})^2$  ✓  
4)  $\frac{\text{perimeter of } \triangle ABC}{\text{perimeter of } \triangle DEF} = \frac{3}{2}$  ✓

7.  $\triangle ABC$  is similar to  $\triangle DEF$ . The ratio of the length of  $\overline{AB}$  to the length of  $\overline{DE}$  is 3:1. Which ratio is also equal to 3:1?

- (1)  $\frac{m\angle A}{m\angle D}$   $1:1$   
(2)  $\frac{m\angle B}{m\angle F}$   $1:1$   
(3)  $\frac{\text{area of } \triangle ABC}{\text{area of } \triangle DEF}$   $3^2:1^2$   
(4)  $\frac{\text{perimeter of } \triangle ABC}{\text{perimeter of } \triangle DEF}$  ✓

8. Given  $\triangle ABC \cong \triangle DEF$ , which statement is *not* always true?

- 1)  $\overline{BC} \cong \overline{DF}$  ~~X~~
- 2)  $m\angle A = m\angle D$  ✓
- 3) area of  $\triangle ABC =$  area of  $\triangle DEF$  ✓
- 4) perimeter of  $\triangle ABC =$  perimeter of  $\triangle DEF$  ✓



9. Triangle  $RJM$  has an area of 6 and a perimeter of 12. If the triangle is dilated by a scale factor of 3 centered at the origin, what are the area and perimeter of its image, triangle  $R'J'M'$ ?

- 1) area of 9 and perimeter of 15
- 2) area of 18 and perimeter of 36
- 3) area of 54 and perimeter of 36
- 4) area of 54 and perimeter of 108

$P: 12 \cdot 3 = 36$   
 $A: 6 \cdot 3^2 = 54$

10. Rectangle  $A'B'C'D'$  is the image of rectangle  $ABCD$  after a dilation centered at point  $A$  by a scale factor of  $\frac{2}{3}$ . Which statement is correct?

- 1) Rectangle  $A'B'C'D'$  has a perimeter that is  $\frac{2}{3}$  the perimeter of rectangle  $ABCD$ .
- 2) Rectangle  $A'B'C'D'$  has a perimeter that is  $\frac{3}{2}$  the perimeter of rectangle  $ABCD$ .
- 3) Rectangle  $A'B'C'D'$  has an area that is  $(\frac{2}{3})^2$  the area of rectangle  $ABCD$ .
- 4) Rectangle  $A'B'C'D'$  has an area that is  $\frac{3}{2}$  the area of rectangle  $ABCD$ .

11. A triangle is dilated by a scale factor of 3 with the center of dilation at the origin. Which statement is true?

- 1) The area of the image is nine times the area of the original triangle. ✓
- 2) The perimeter of the image is nine times the perimeter of the original triangle. ~~X~~
- 3) The slope of any side of the image is three times the slope of the corresponding side of the original triangle. ~~X~~ *same slope*
- 4) The measure of each angle in the image is three times the measure of the corresponding angle of the original triangle. ~~X~~ *same angles*

12. If  $\triangle ABC$  is dilated by a scale factor of 3, which statement is true of the image  $\triangle A'B'C'$ ?

- 1)  $3A'B' = AB$  ~~X~~
- 2)  $B'C' = 3BC$  ✓
- 3)  $m\angle A' = 3(m\angle A)$  ~~X~~
- 4)  $3(m\angle C') = m\angle C$  ~~X~~

