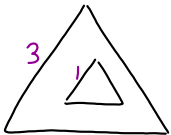


4. A triangle is dilated by a scale factor of 3 with the center of dilation at the origin. Which statement is true?

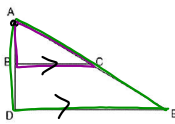
(1) The area of the image is nine times the area of the original triangle.
 (2) The perimeter of the image is nine times the perimeter of the original triangle.
 (3) The slope of any side of the image is three times the slope of the corresponding side of the original triangle.
 (4) The measure of each angle in the image is three times the measure of the corresponding angle of the original triangle.

$(\frac{3}{1})^2 = \frac{9}{1}$

Ratio of Sides = Ratio of Perimeters
 (Ratio of Sides)² = Ratio of Areas
 $(\frac{3}{1})^2 = \frac{9}{1}$



5. The image of $\triangle ABC$ after a dilation of scale factor k centered at point A is $\triangle ADE$, as shown in the diagram below.

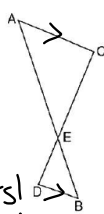


Which statement is always true?

(1) $\angle AB = \angle AD$
 (2) $AD \perp DE$
 (3) $AC = CE$
 (4) $BC \parallel DE$

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6. As shown in the diagram below, \overline{AB} and \overline{CD} intersect at E, and $\overline{AC} \parallel \overline{BD}$.



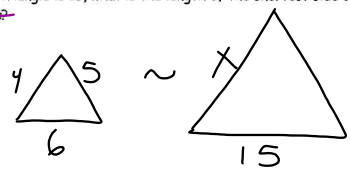
order matters!

Given $\triangle AEC \sim \triangle BED$ which equation is true?

(1) $\frac{CE}{DE} = \frac{EB}{EA}$
 (2) $\frac{AE}{BE} = \frac{AC}{BD}$
 (3) $\frac{EC}{AE} = \frac{BE}{ED}$
 (4) $\frac{ED}{EC} = \frac{AC}{BD}$

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8. The lengths of the sides of a triangle are 4, 5, and 6. If the length of the longest side of a similar triangle is 15, what is the length of the shortest side of the triangle, the longest side?



$\frac{6}{15} = \frac{4}{x}$
 $6x = 60$
 $x = 10$

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10. Find the ratio of the areas of two similar triangles in which the ratio of a pair of corresponding sides is 2:5.

(Ratio of Sides)² = Ratio of Areas
 $(\frac{2}{5})^2 = \frac{4}{25}$

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Use the diagram below to answer the following questions. Assume $\triangle ABC \sim \triangle DEF$.

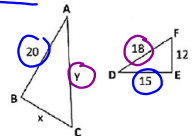
12. Find the scale factor of the small triangle to the large triangle.

$\frac{15}{20} \rightarrow \frac{3}{4}$

13. Find the value of x and y.

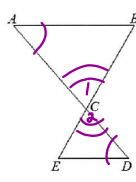
$\frac{3}{4} = \frac{12}{x}$
 $3x = 48$
 $x = 16$

$\frac{3}{4} = \frac{18}{y}$
 $3y = 72$
 $y = 24$



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16. Given: $\angle BAC \cong \angle EDC$
 Prove: $AB \times CD = ED \times AC$



S	R
① $\angle BAC \cong \angle EDC$	① Given
② $\angle 1 \cong \angle 2$	② Vertical \angle 's are \cong .
③ $\triangle ABC \sim \triangle DEC$	③ AA \sim
④ $\frac{AB}{ED} = \frac{AC}{CD}$	④ Corresponding sides of $\sim \Delta$'s are in prop.
⑤ $AB \times CD = ED \times AC$	⑤ In a proportion the product of the means = the product of the extremes.

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17. In the diagram below, \overline{CD} is the image of \overline{AB} after a dilation of scale factor k with center E .

Blue
Purple
order
matters

$\frac{CD}{AB}$

$k = \frac{\text{Image}}{\text{Pre-image}}$

Which ratio is equal to the scale factor k of the dilation?

(1) $\frac{EC}{EA}$ (3) $\frac{EA}{BA}$

(2) $\frac{EA}{EA}$ (4) $\frac{EA}{EC}$

$\frac{\text{New}}{\text{old}}$

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