

Dilations - Enlargements WS

1. The square RSTW has coordinates $R(2,2)$ $S(2,-2)$ $T(-2,2)$ and $W(-2,-2)$. The figure is enlarged 200%. Find the coordinates of T' .

$200\% \rightarrow \text{s.f.} = 2$
 $T(-2,2) \rightarrow T'(-4,4)$ $(x,y) \rightarrow (2x,2y)$

2. Triangle EFG is located at $E(5,5)$ $F(5,10)$ and $G(10,15)$. The image is located at $E'(9,9)$ $F'(9,18)$ and $G'(18,27)$. By what percent was EFG enlarged by?

$\frac{\text{New}}{\text{Old}} = \frac{9}{5} = 1.8 = 180\%$ enlargement

3. If you enlarge a rectangle by 275%, what scale factor are you using?

2.75 because $275\% = 2.75$ in decimal form

4. Does a dilation create a similar or congruent figure? Explain.

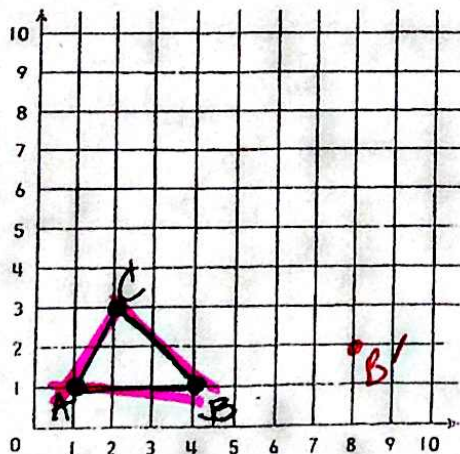
A dilation creates a similar figure because the two shapes are different sizes. A congruent figure would mean the shapes are the same size.

5. Given ABC on the coordinate grid, what would be the ordered pair of B' using a scale factor of 2?

$B = (4, 1)$

s.f. = 2

$B' = (8, 2)$



$(x,y) = (2x,2y)$

Dilations - Reductions WS

1. The vertices of triangle ABC are located at $A(20,10)$ $B(15,5)$ $C(5,15)$. The sides of the triangle are reduced by 40%. What are the coordinates of B' ?

$$100\% - 40\% = 60\% \quad \text{s.f.} = 0.6 \quad (x,y) \rightarrow (0.6x, 0.6y)$$

$$B(15,5) \quad (0.6 \cdot 15, 0.6 \cdot 5)$$

$$B'(9, 3)$$

2. If a figure is being reduced by 75%, what scale factor would you be using?

$$100\% - 75\% = 25\%$$

$$\text{s.f. is } 0.25$$

3. If a triangle has vertices at $A(3,3)$ $B(3,6)$ and $C(2,1)$ and is reduced by $\frac{1}{3}$ what would be the coordinates of A' B' and C' ?

$$(x,y) \rightarrow (\frac{1}{3}x, \frac{1}{3}y) \quad \text{s.f.}$$

$$A'(3 \cdot \frac{1}{3}, 3 \cdot \frac{1}{3}) = A'(1, 1)$$

$$B'(3 \cdot \frac{1}{3}, 6 \cdot \frac{1}{3}) = B'(1, 2)$$

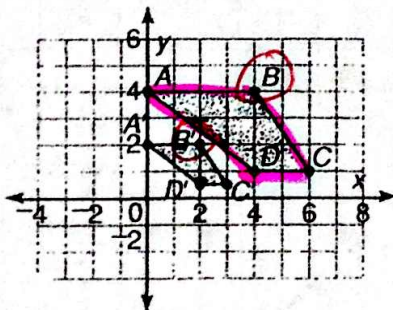
$$C'(2 \cdot \frac{1}{3}, 1 \cdot \frac{1}{3}) = C'(\frac{2}{3}, \frac{1}{3})$$

4. If $\triangle EFG$ is reduced by 25% and the coordinates are located at $E(4,-8)$ $F(8,0)$ and $G(8,12)$. What are the coordinates of G' ?

$$100\% - 25\% = 75\% \quad \text{s.f.} = 0.75 \quad (x,y) \rightarrow (0.75x, 0.75y)$$

$$G'(8 \cdot 0.75, 12 \cdot 0.75) = G'(6, 9)$$

5. What a scale factor is being used in the following dilation?



Reduction

$$B(4,4)$$

$$B'(2,2)$$

$$\frac{\text{New}}{\text{Old}} = \frac{2}{4} = \frac{1}{2}$$

$$\text{s.f.} = \frac{1}{2}$$