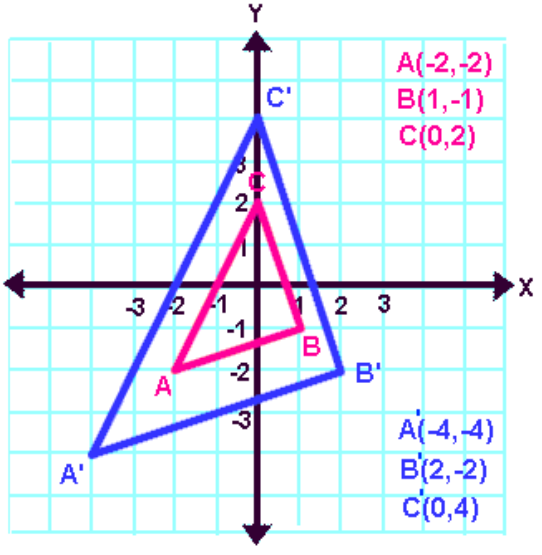
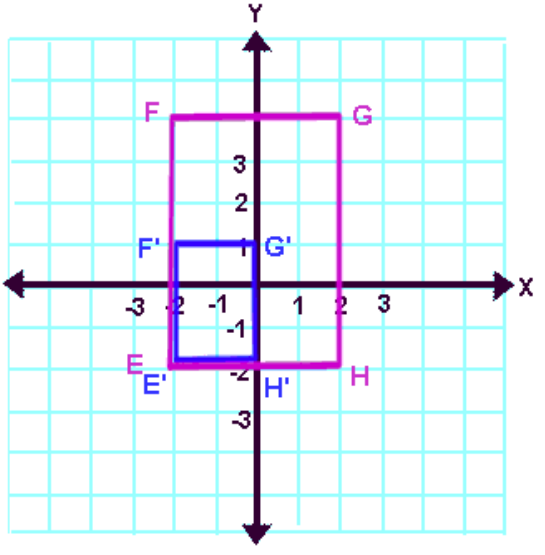
Warm Up

Are these enlarged or reduced?

What is the scale factor?

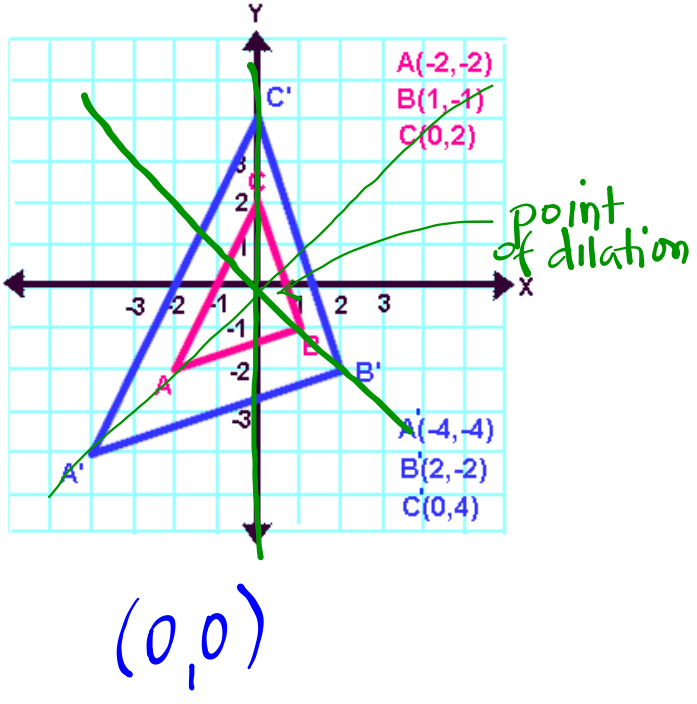


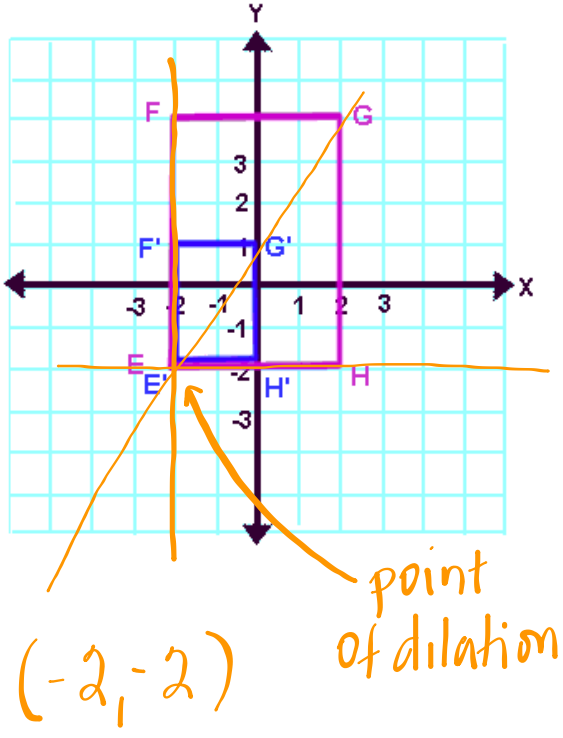


Enlarged -
the larger figure has the prime notation

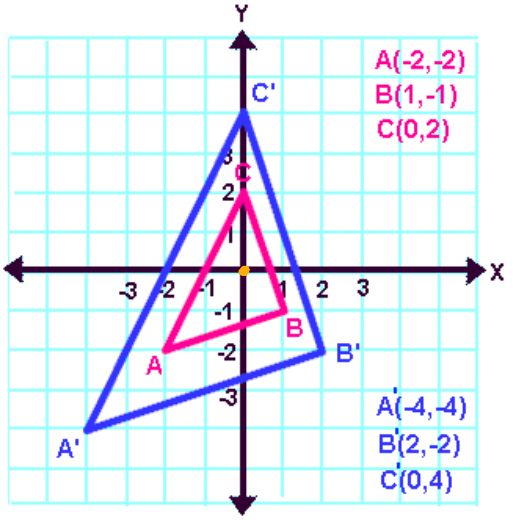
Reduced -
The points with the primes are on the smaller figure.

How to find Point of Dilation





How to find Scale Factor



Scale Factor = 2

How far is C & C' from point of dilation

$$\frac{\text{Image}}{\text{Pre-image}} = \frac{4}{2} = 2$$

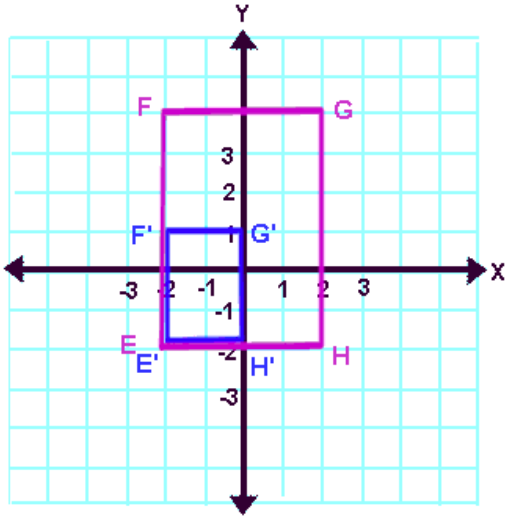
Use points

C (0, 2) ×2

C' (0, 4)

A (-2, -2)

A' (-4, -4) $\frac{-4}{-2} = 2$



Scale Factor = 0.5

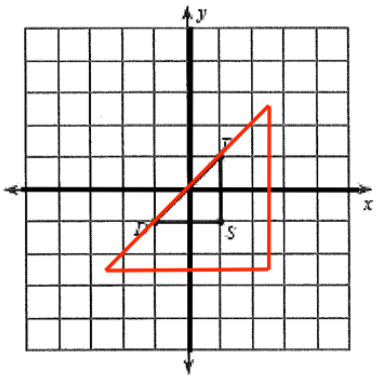
Compare side lengths

$\overline{EH} = 4$ $\overline{E'H'} = 2$

$$\frac{E'H'}{EH} = \frac{2}{4} = \frac{1}{2}$$

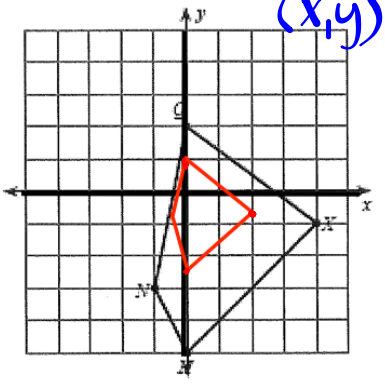
are from the origin unless otherwise noted.

1. Dilation of 2.5

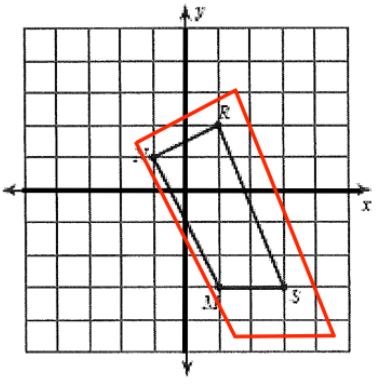


2. Dilation of 0.5

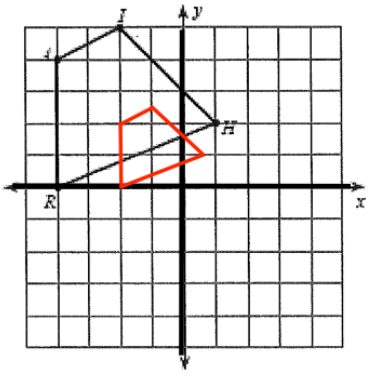
$(x,y) \rightarrow (\frac{1}{2}x, \frac{1}{2}y)$



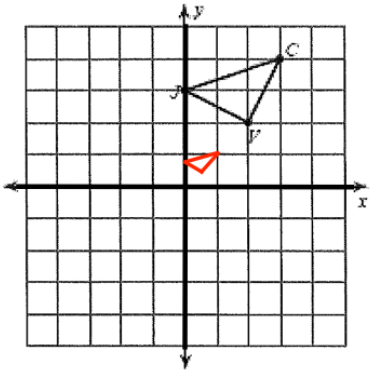
3. Dilation of 1.5



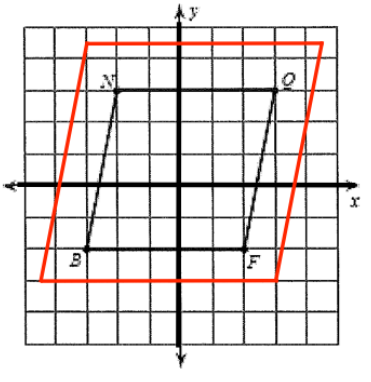
4. Dilation of 0.5



5. Dilation of ¼

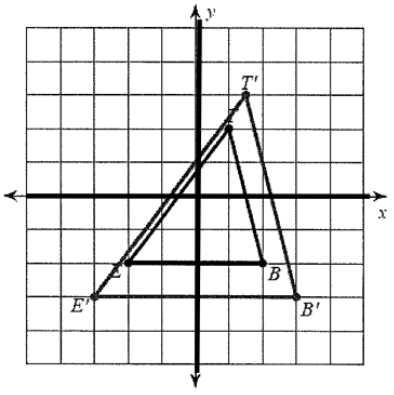


6. Dilation of 1.5



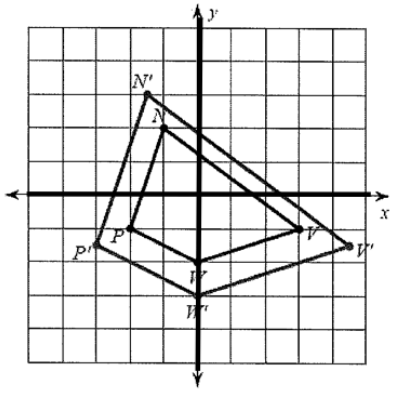
Write a rule to describe each transformation.

7.



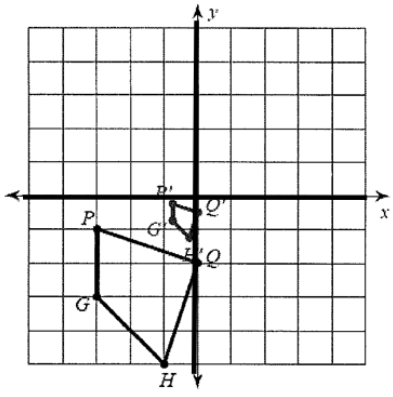
(x, y) → (1.5x, 1.5y)

8.



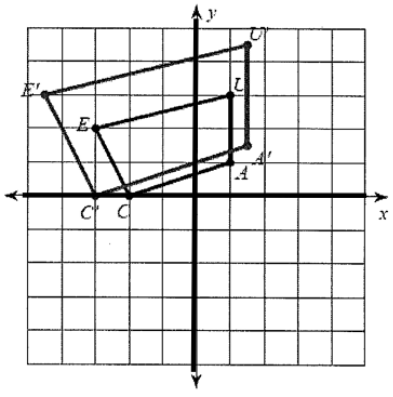
(x, y) → (1.5x, 1.5y)

9.



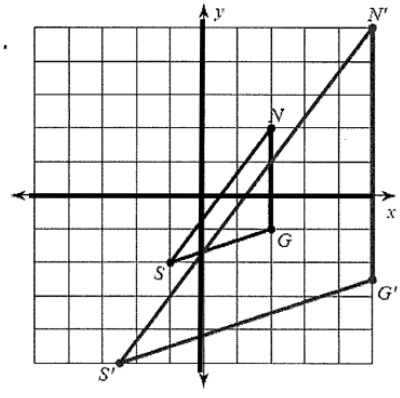
(x, y) → (.25x, .25y)

10.



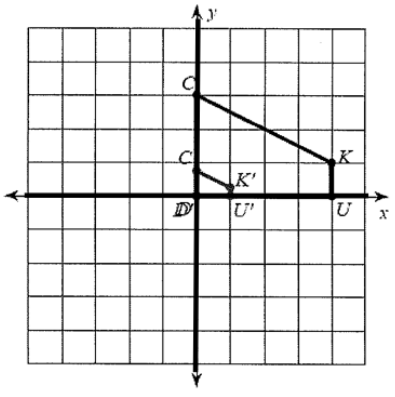
(x, y) → (1.5x, 1.5y)

11.



(x, y) → (2.5x, 2.5y)

12.



(x, y) → (.25x, .25y)

Write a rule to describe each transformation.

13. U(–2, –1), K(0, 2), F(2, –2) to U'(–3, –1.5), K'(0, 3), F'(3, –3)
(x, y) ⟶ (1.5x, 1.5y)

14. V(–1, –2), K(–1, 3), Y(1, 0) to V'(–1.5, –3), K'(–1.5, 4.5), Y'(1.5, 0)
(x, y) ⟶ (1.5x, 1.5y)

15. K(–1, –2), U(–2, 2), V(2, 2), Q(2, –1) to K'(–2, –4), U'(–4, 4), V'(4, 4), Q'(4, –2)
(x, y) ⟶ (2x, 2y)

16. N(–4, 1), T(–5, 3), J(–4, 3), C(–1, 0) to N'(–1, 0.25), T'(–1.25, 0.75), J'(–1, 0.75), C'(–0.25, 0)
(x, y) ⟶ (.25x, .25y)

17. K(–1, 0), N(–2, 2), H(3, 3), T(3, –2) to K'(–1.5, 0), N'(–3, 3), H'(4.5, 4.5), T'(4.5, –3)
(x, y) ⟶ (1.5x, 1.5y)

Write the coordinates of the vertices after the given transformation.

18. Dilation of 4
N(0, 1), O(1, 1), P(0, 8)
N'(0, 4), O'(4, 4), P'(0, 32)

19. Dilation of 1.5
V(–2, –2), I(1, 2), F(2, 0)
V'(–3, –3), I'(1.5, 3), F'(3, 0)

20. Dilation of ½
U(3, 2), C(4, 4), E(5, 2)
U'(1.5, 1), C'(2, 2), E'(2.5, 1)

21. Dilation of 2
H(–1, –2), A(–2, 2), W(2, 2)
H'(–2, –4), A'(–4, 4), W'(4, 4)

22. Dilation of ¼
W(–4, –5), X(–5, –1), T(–3, 0)
W'(-1, -1.25), X'(–1.25, –.25), T'(-.75, 0)

23. Dilation of 5
Q(–3, –3), M(0, –1), H(1, –3)
Q'(–15, –15), M'(0, –5), H'(5, –15)

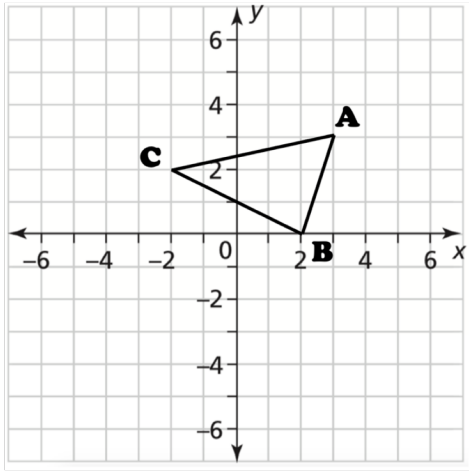
24. Dilation of 3
Q(–3, –3), M(0, –1), H(1, –3)
Q'(–9, –9), M'(0, –3), H'(3, –9)

25. Dilation of 5/2
C(–1, –2), V(–2, 2), N(2, 0)
C'(–2.5, –5), V'(–5, 5), N'(5, 0)

Transformations and Congruence

We will be using Δ ABC as our Preimage for all of the following problems.

1. Using the Pythagorean Theorem, calculate the lengths of each side of Δ ABC. Round your answers to the nearest tenth.
   Show work below.



AB =

BC =

AC =

AB = BC = AC =

2. Calculate the slope for each side of Δ ABC.

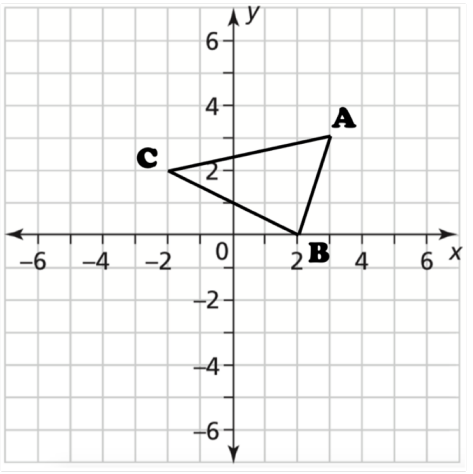
Slope AB =

Slope BC =

Slope AC =

For each of the following questions, graph the transformation and then answer the questions.

3. **Translate** Δ ABC following the rule $(x, y) \rightarrow (x - 2, y - 3)$



Using the Pythagorean Theorem, calculate the length of side A'B'. Round your answer to the nearest tenth.

Calculate the slope for each side of Δ A'B'C'.

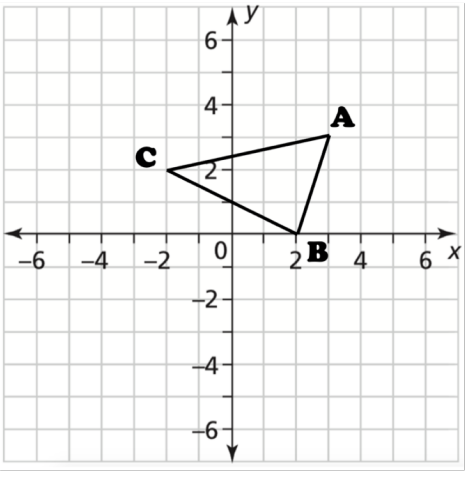
Slope A'B'=

Slope B'C' =

Slope A'C' =

How do the length of A'B' and the slopes of the sides compare to those of Δ ABC'?

4. **Reflect** Δ ABC across the line $y = -1$.



Using the Pythagorean Theorem, calculate the length of side A'B'. Round your answer to the nearest tenth.

Calculate the slope for each side of Δ A'B'C'.

Slope A'B'=

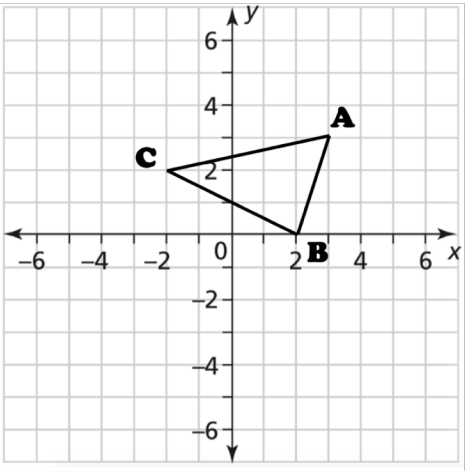
Slope B'C' =

Slope A'C' =

How do the length of A'B' and the slopes of the sides compare to those of Δ ABC'?

5. **Rotate** Δ ABC 90° clockwise around the point (0, 0).

Using the Pythagorean Theorem, calculate the length of side A'B'. Round your answer to the nearest tenth.



Calculate the slope for each side of Δ A'B'C'.

Slope A'B'=

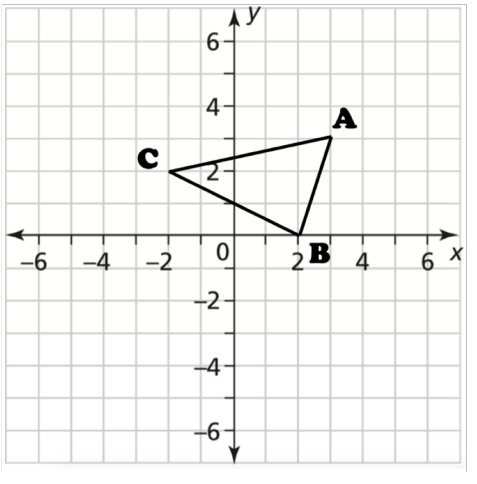
Slope B'C' =

Slope A'C' =

How do the length of A'B' and the slopes of the sides compare to those of Δ ABC'?

6. **Dilate** Δ ABC by a factor of two from the origin (0, 0).

Using the Pythagorean Theorem, calculate the length of side A'B'. Round your answer to the nearest tenth.



Calculate the slope for each side of Δ A'B'C'.

Slope A'B'=

Slope B'C' =

Slope A'C' =

How do the length of A'B' and the slopes of the sides compare to those of Δ ABC'?

7. For which transformations ae the following statements true? Check the appropriate boxes.

	Translation	Reflection	Rotation	Dilation
Corresponding **sides** of the Preimage and Image are **parallel**.				
Corresponding **sides** of the Preimage and Image are the **same size**.				
Corresponding **angle measures** of the Preimage and Image are the **same size**.				
The image and preimage are **congruent**.				

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Homework

Finish classwork