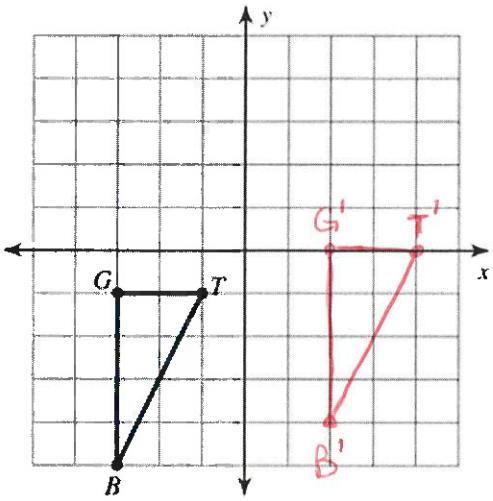
Extra Practice – Single Transformations Answer Key

Translations:

1) translation: 5 units right and 1 unit up



a) List the coordinates of G, T and B

G(-3,-1)
T(-1,-1)
B(-3,-5)

b) Translate the shape and label its vertices G', T' and B'

c) List the coordinates of G', T' and B'

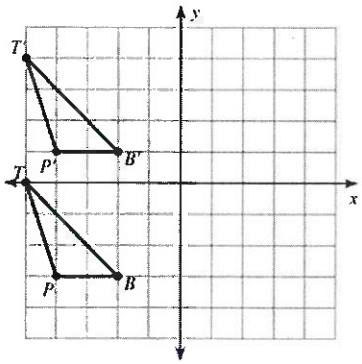
G'(2,0)
T'(4,0)
B'(2,-4)

2) A quadrilateral whose vertices are A(0, 2), B(7, 6), C(3, 3) and D(-2, 3) is translated 3 units left and 6 units down. What are the coordinates of A', B', C' and D'?

A' (-3,-4) B' (4,0)

C' (0,-3) D' (-5,-3)

3) Describe the translation(s) that produced B'T'P'

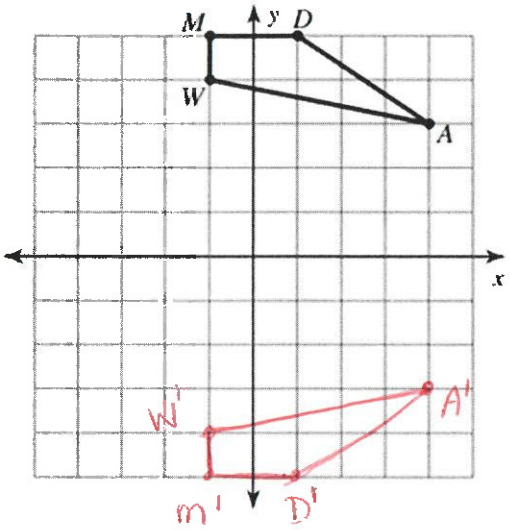


Translated up 4 units

Extra Practice – Single Transformations

Reflections:

1) Reflection across the x-axis.



a) List the coordinates of A, D, M, and W

A(4,3) D(1,5)

m(-1,5) W(-1,4)

b) Reflect the shape and label its vertices A', D', M', W'

c) List the coordinates of A', D', M' and W'

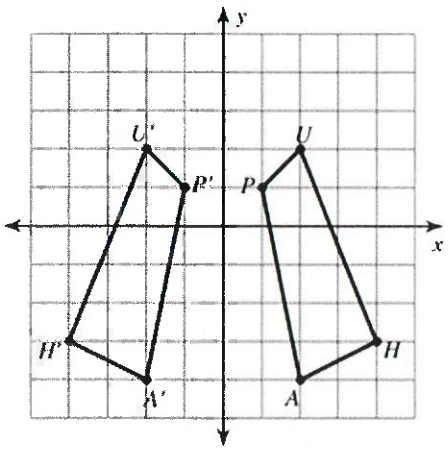
A'(4,-3) D'(1,-5)

m'(-1,-5) W'(-1,-4)

2) A triangle whose vertices are A(-4, -3), B(0, 4), and C(3, 2) is reflected across the y-axis. What are the coordinates of A', B', and C'?

A' (4,-3) B' (0,4) C' (-3,2)

3) Describe the reflection that produced A'P'U'H'

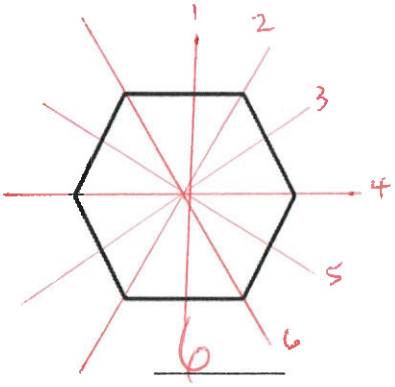


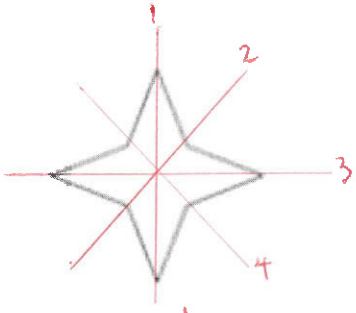
reflection across the y-axis

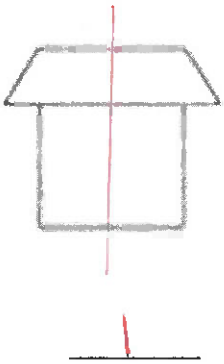
Extra Practice – Single Transformations

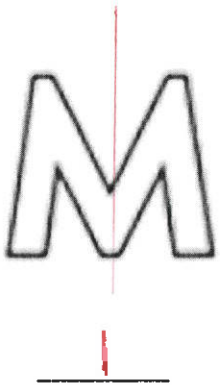
Lines of Symmetry:

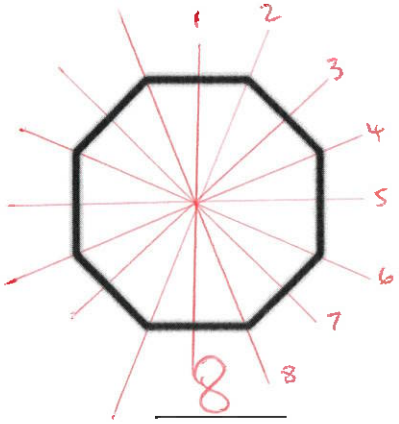
How many lines of symmetry do each of the following shapes display? Draw all of the lines of symmetry that exist.

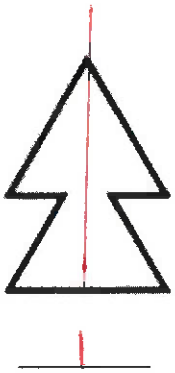








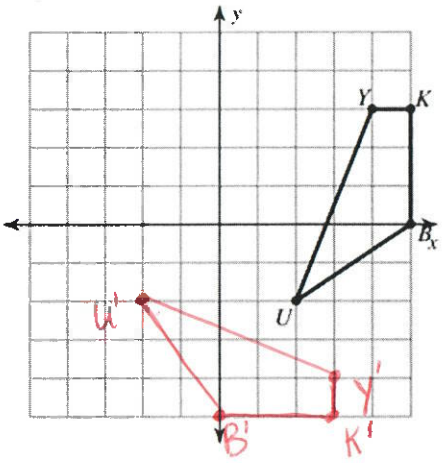




Extra Practice – Single Transformations

Rotations:

1) Clockwise rotation.



a) List the coordinates of B, U, Y, and K

B(5,0) U(2,-2)
Y(4,3) K(5,3)

b) Rotate the shape 90° clockwise and label its vertices B', U', Y', K'

c) List the coordinates of B', U', Y', and K'

B'(0,-5) U'(-2,-2)
Y'(3,-4) K'(3,-5)

2) A triangle whose vertices are A(1, 3), B(7, 1), and C(4, 6) is rotated clockwise around the origin.

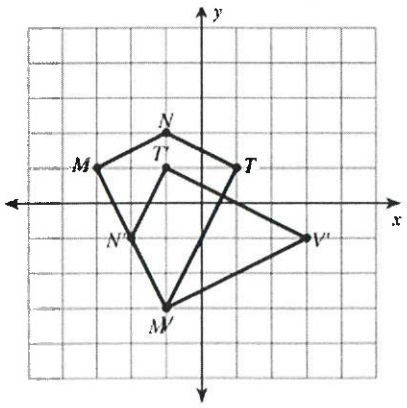
a) What are the coordinates of A', B', and C' for a rotation of 180°?

A' (-1,-3) B' (-7,-1) C' (-4,-6)

b) What are the coordinates of A", B", and C"' for a rotation of 270°?

A" (-3,1) B" (-1,7) C" (-6,4)

3) Describe the rotation that produced M'N'T'V'



90° counter clockwise
or
270° clockwise

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Dilations:

1) A square with side lengths of 18.5 cm is dilated by a scale factor of 1/5. What are the lengths of the sides of the dilated square?

$18.5 \times \frac{1}{5} = 3.7$ cm

2) A prism with a length of 20 mm, a width of 8 mm and a height of 16 mm is dilated by a scale factor of 3.5. What are the dimensions of the dilated prism?

L: $20 \times 3.5 = 70$ mm

W: $8 \times 3.5 = 28$ mm

H: $16 \times 3.5 = 56$ mm

3) A scalene triangle with sides of 10 cm, 6 cm and 9 cm is dilated to produce a scalene triangle with sides of 25 cm, 15 cm, and 22.5 cm. What scale factor was used in the dilation?

$\frac{25}{10} = 2.5$ $\quad \frac{15}{6} = 2.5$ $\quad \frac{22.5}{9} = 2.5$

∴ The scale factor was 2.5

4) Can a photograph measuring 4 inches by 6 inches be dilated to fit a frame that measures 42 inches by 65 inches? Explain.

To dilate 4 inches to 42 inches requires a scale factor of $\frac{42}{4} = 10.5$.

To dilate 6 inches ~~by~~ 10.5 would result in 63 inches

∴ The dilated photo won't fit (there would be a 2-inch gap).