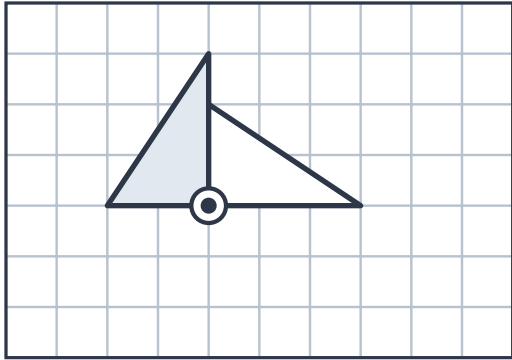


Rotating Shapes

Rotate (turn) each shape about the dot. Draw where it ends up.

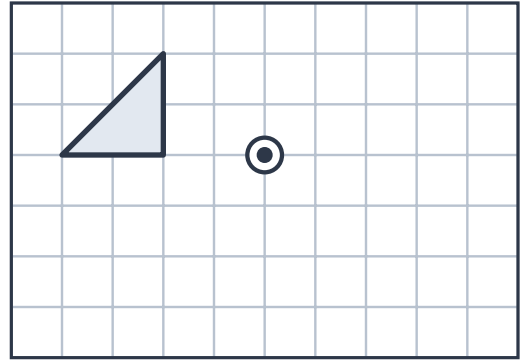
1.

Example



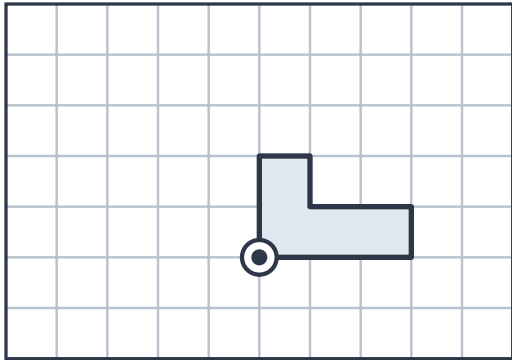
Quarter turn clockwise ↻

2.



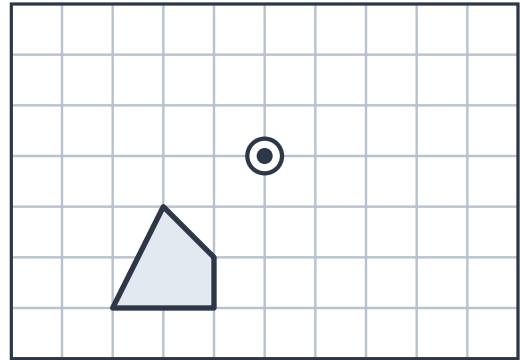
Half turn clockwise ↻

3.



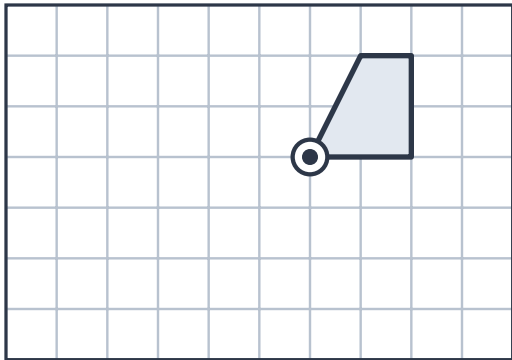
Quarter turn anticlockwise ↺

4.



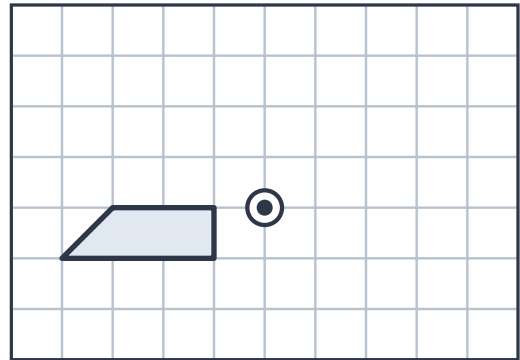
Three-quarter turn clockwise ↻

5.



Three-quarter turn anticlockwise ↺

6.



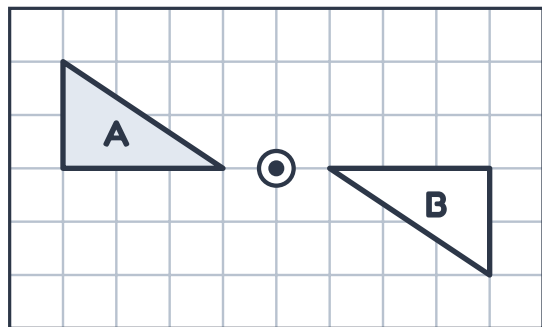
Half turn anticlockwise ↺

Rotating Shapes

Shape A turned about the dot to B. Circle the size of the turn.

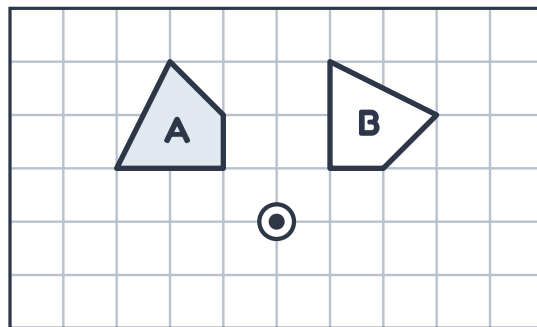
1. It turned clockwise ↻

Example



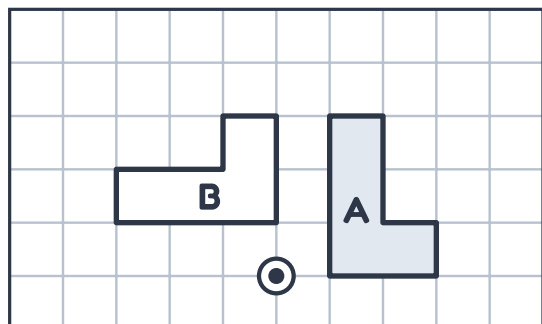
quarter **half** three-quarter

2. It turned clockwise ↻



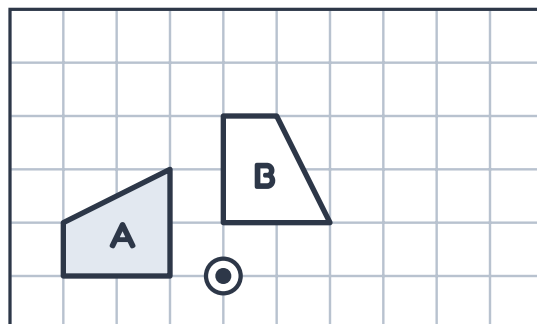
quarter half three-quarter

3. It turned anticlockwise ↻



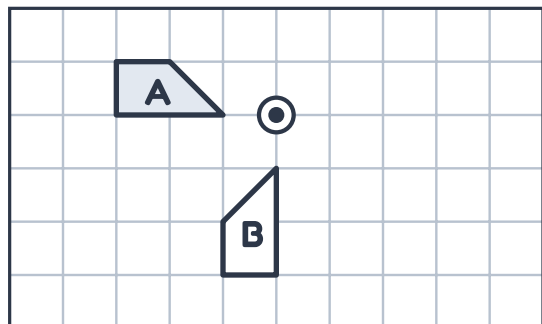
quarter half three-quarter

4. It turned anticlockwise ↻



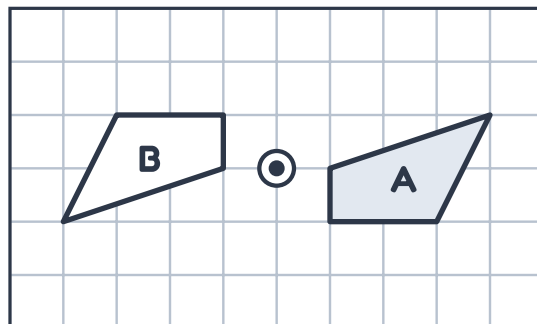
quarter half three-quarter

5. It turned clockwise ↻



quarter half three-quarter

6. It turned anticlockwise ↻



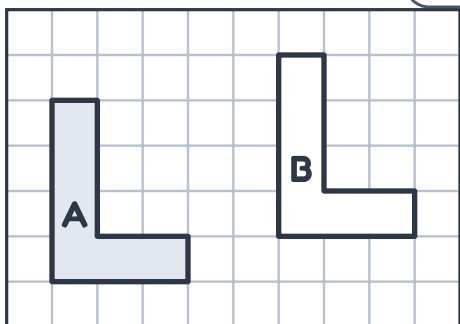
quarter half three-quarter

Rotating Shapes

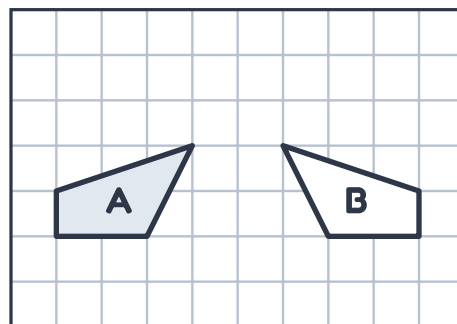
Did shape A slide, flip or turn to B? Circle the move.

1.

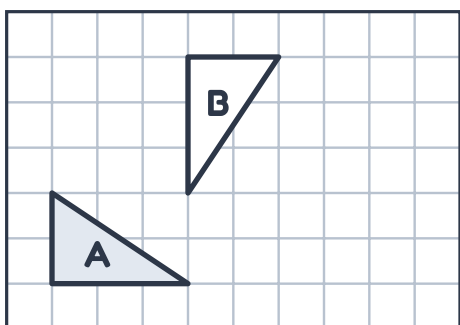
Example

**translate**
(slide)**reflect**
(flip)**rotate**
(turn)

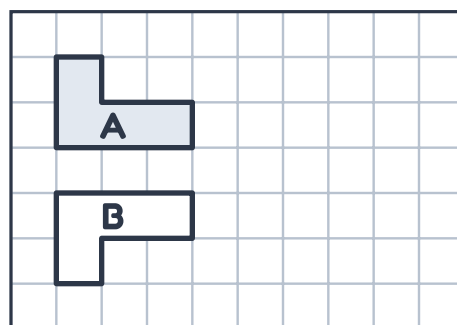
2.

**translate**
(slide)**reflect**
(flip)**rotate**
(turn)

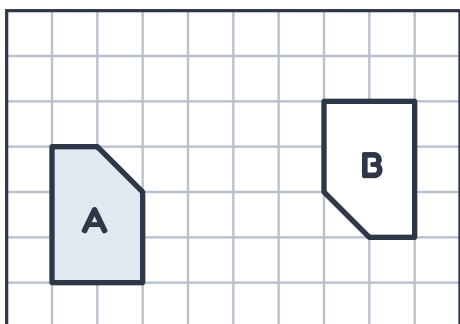
3.

**translate**
(slide)**reflect**
(flip)**rotate**
(turn)

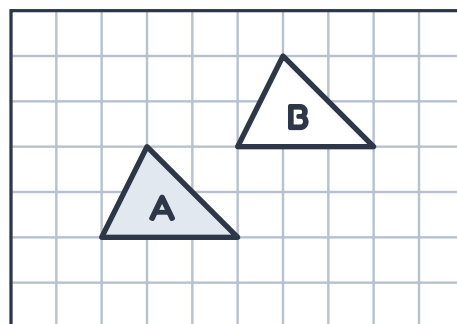
4.

**translate**
(slide)**reflect**
(flip)**rotate**
(turn)

5.

**translate**
(slide)**reflect**
(flip)**rotate**
(turn)

6.

**translate**
(slide)**reflect**
(flip)**rotate**
(turn)

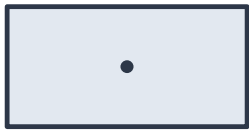
Rotating Shapes

Find the order of rotational symmetry. Then finish each design.

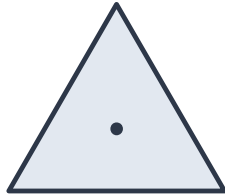
How many times does it fit onto itself in one full turn?

1.

Example

Order 2

2.



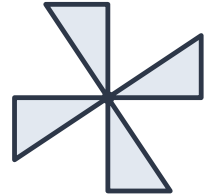
Order _____

3.



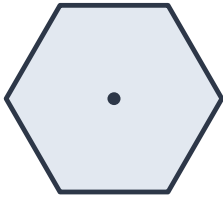
Order _____

4.



Order _____

5.



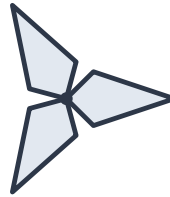
Order _____

6.



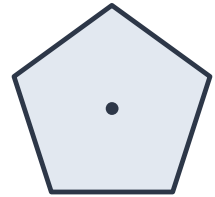
Order _____

7.



Order _____

8.

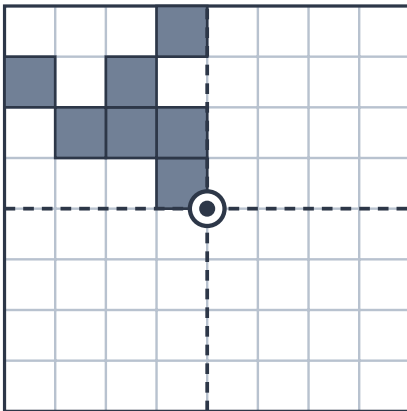


Order _____

Shade squares to finish each design. Turn about the dot.

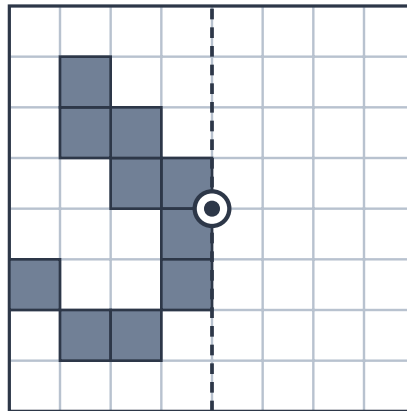
9.

Order 4



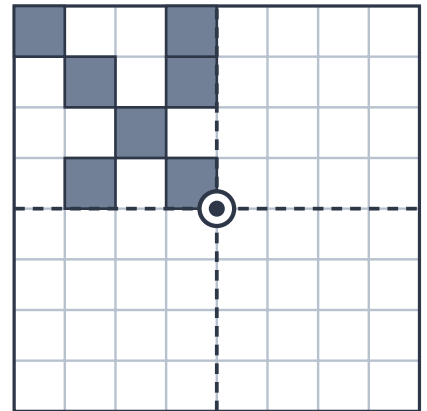
10.

Order 2



11.

Order 4



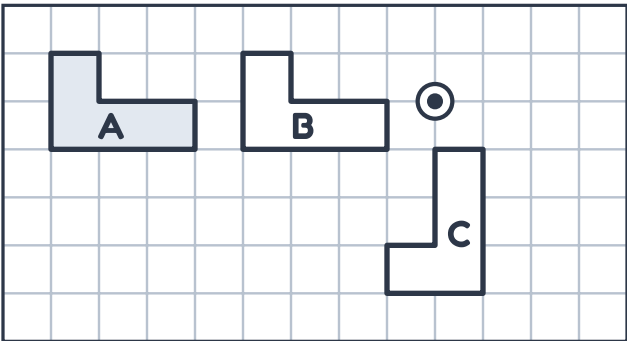
Rotating Shapes

Draw B after the first move and C after the second. Then circle.

1. First translate (slide) 4 right.

Example

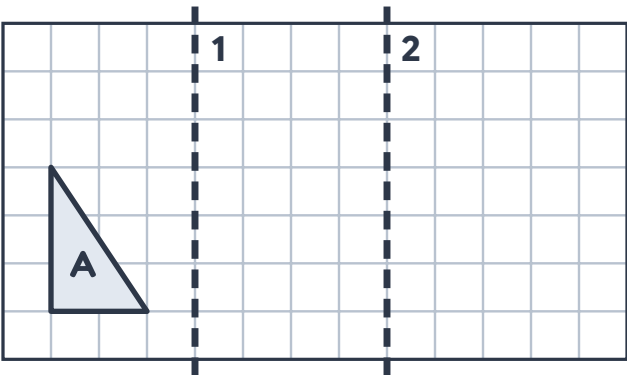
Then rotate (turn) a quarter turn anticlockwise about the dot.



Size	same	changed
Shape	same	changed
Angles	same	changed
Position	same	changed
Way it faces	same	changed

2. First reflect (flip) in mirror line 1.

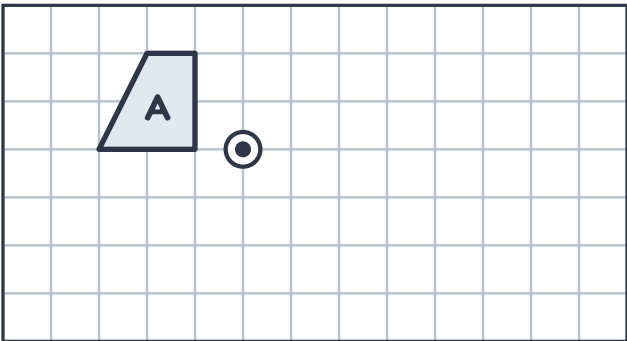
Then reflect (flip) in mirror line 2.



Size	same	changed
Shape	same	changed
Angles	same	changed
Position	same	changed
Way it faces	same	changed

3. First rotate (turn) a half turn clockwise about the dot.

Then translate (slide) 4 right, 1 down.



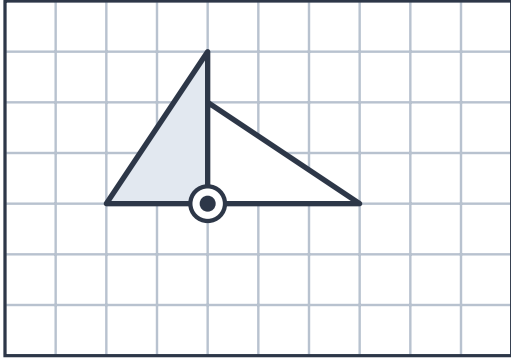
Size	same	changed
Shape	same	changed
Angles	same	changed
Position	same	changed
Way it faces	same	changed

Rotating Shapes

Rotate (turn) each shape about the dot. Draw where it ends up.

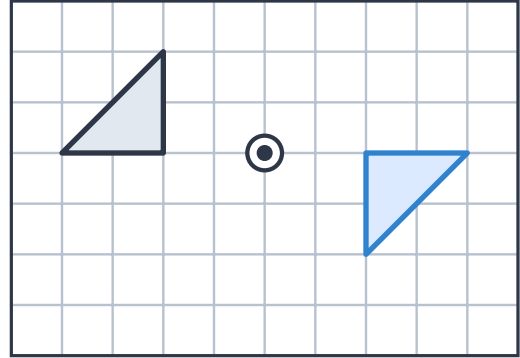
1.

Example



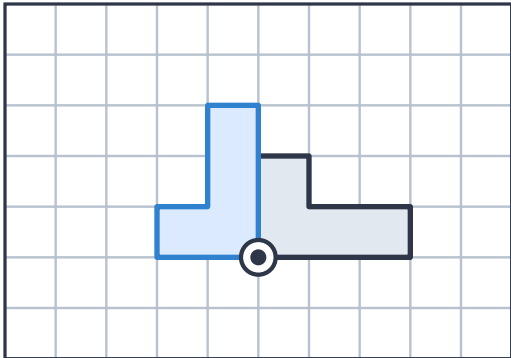
Quarter turn clockwise ↻

2.



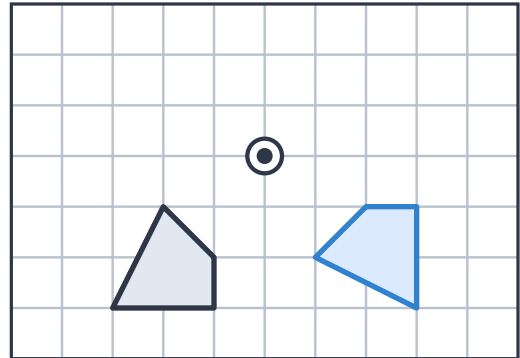
Half turn clockwise ↻

3.



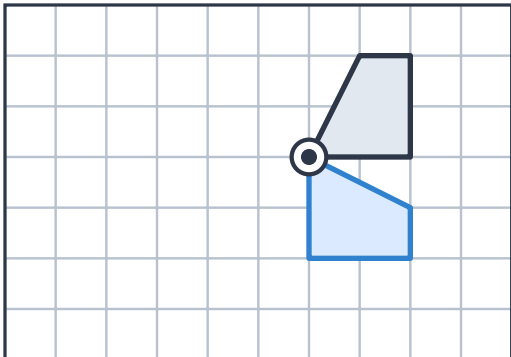
Quarter turn anticlockwise ↻

4.



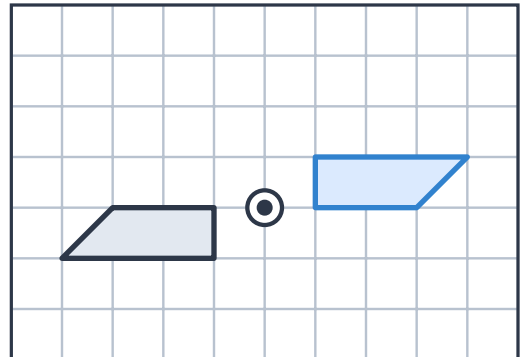
Three-quarter turn clockwise ↻

5.



Three-quarter turn anticlockwise ↻

6.



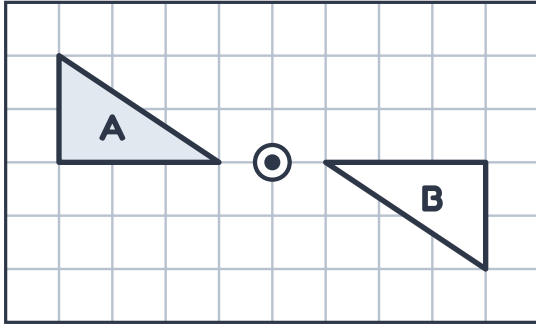
Half turn anticlockwise ↻

Rotating Shapes

Shape A turned about the dot to B. Circle the size of the turn.

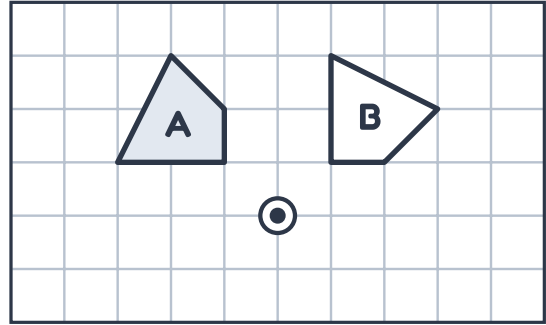
1. It turned clockwise ↻

Example



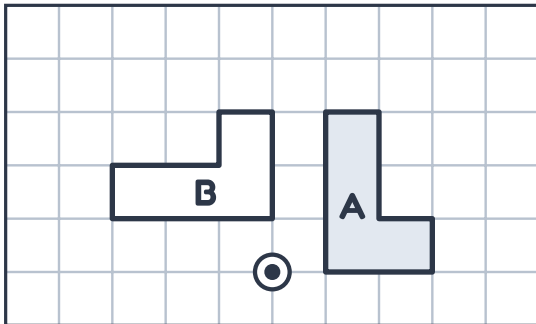
quarter **half** three-quarter

2. It turned clockwise ↻



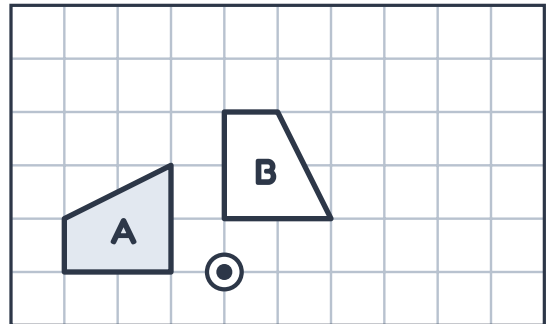
quarter half three-quarter

3. It turned anticlockwise ↻



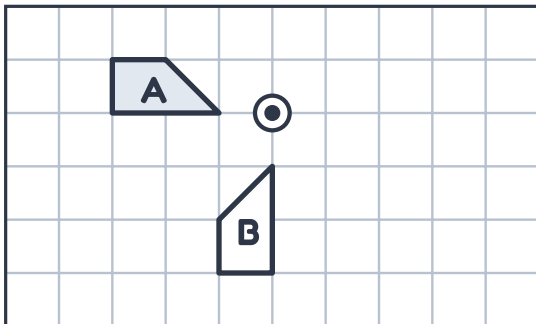
quarter half three-quarter

4. It turned anticlockwise ↻



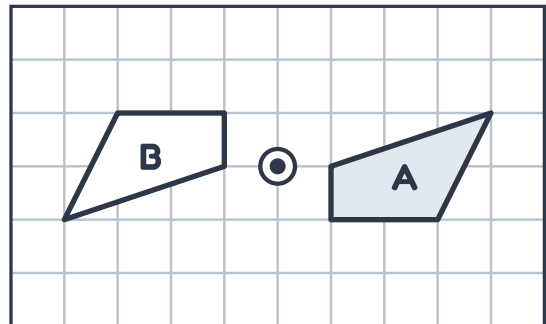
quarter half **three-quarter**

5. It turned clockwise ↻



quarter half **three-quarter**

6. It turned anticlockwise ↻



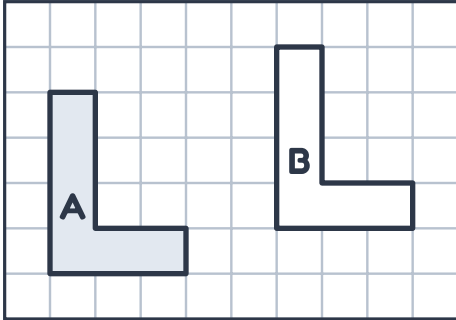
quarter **half** three-quarter

Rotating Shapes

Did shape A slide, flip or turn to B? Circle the move.

1.

Example

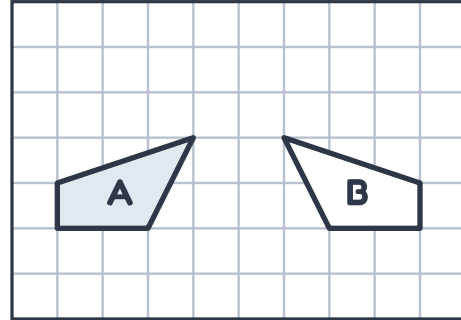


translate
(slide)

reflect
(flip)

rotate
(turn)

2.

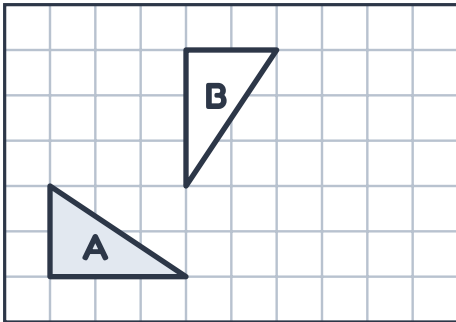


translate
(slide)

reflect
(flip)

rotate
(turn)

3.

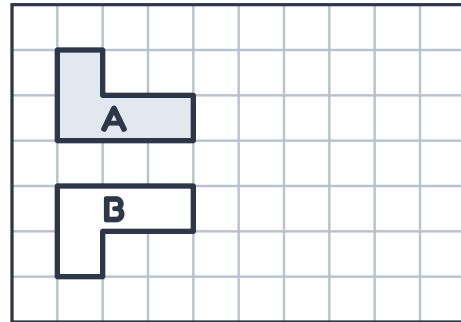


translate
(slide)

reflect
(flip)

rotate
(turn)

4.

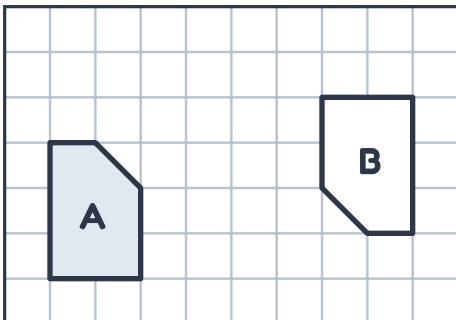


translate
(slide)

reflect
(flip)

rotate
(turn)

5.

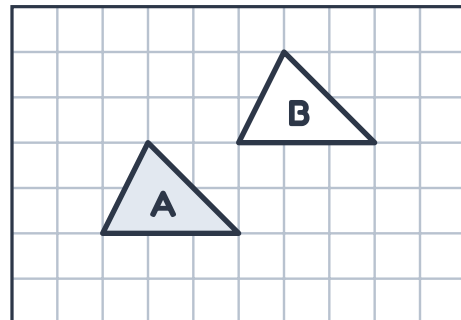


translate
(slide)

reflect
(flip)

rotate
(turn)

6.



translate
(slide)

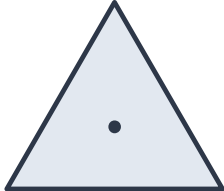
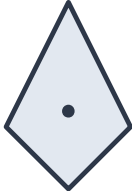
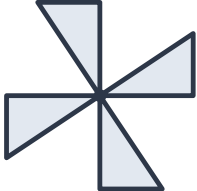
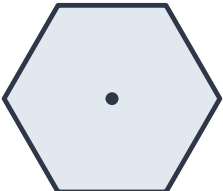
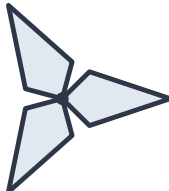
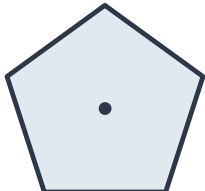
reflect
(flip)

rotate
(turn)

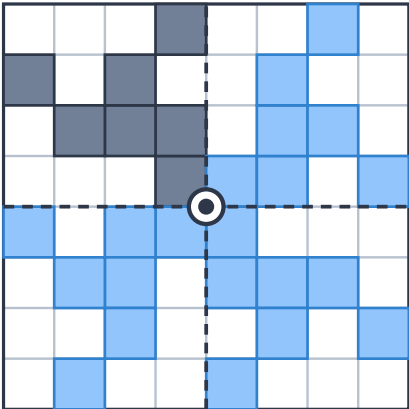
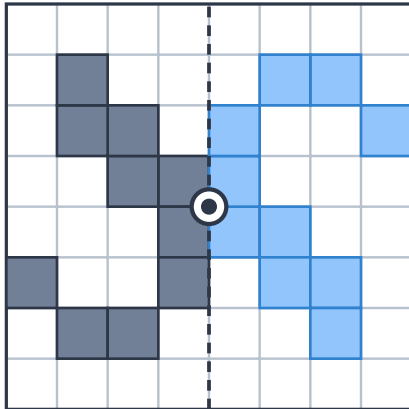
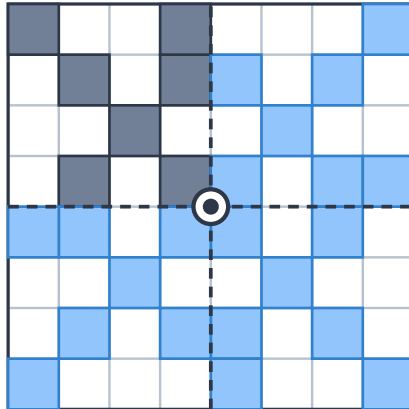
Rotating Shapes

Find the order of rotational symmetry. Then finish each design.

How many times does it fit onto itself in one full turn?

1. Example  Order <u>2</u>	2.  Order <u>3</u>	3.  Order <u>1</u>	4.  Order <u>4</u>
5.  Order <u>6</u>	6.  Order <u>2</u>	7.  Order <u>3</u>	8.  Order <u>5</u>

Shade squares to finish each design. Turn about the dot.

9. Order 4 	10. Order 2 	11. Order 4 
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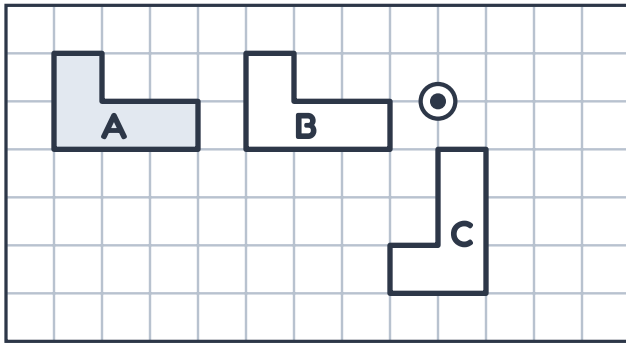
Rotating Shapes

Draw B after the first move and C after the second. Then circle.

1. First translate (slide) 4 right.

Example

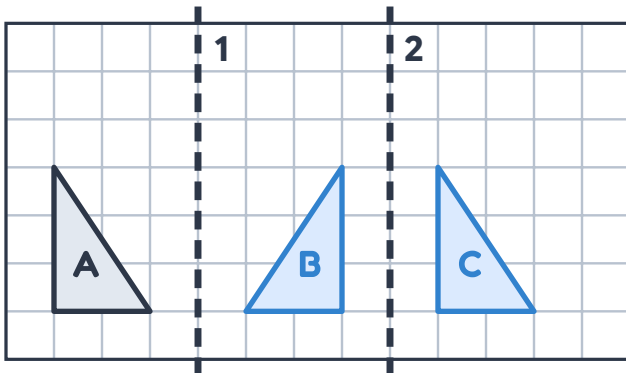
Then rotate (turn) a quarter turn anticlockwise about the dot.



Size	same	changed
Shape	same	changed
Angles	same	changed
Position	same	changed
Way it faces	same	changed

2. First reflect (flip) in mirror line 1.

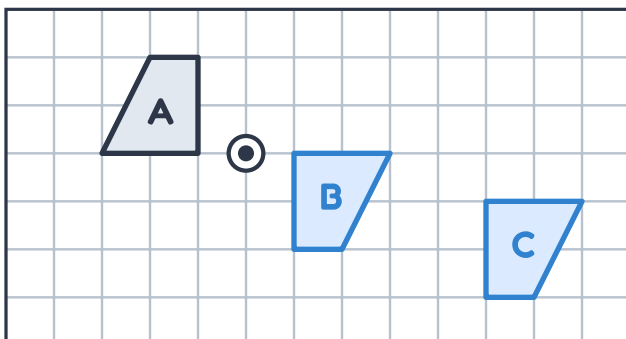
Then reflect (flip) in mirror line 2.



Size	same	changed
Shape	same	changed
Angles	same	changed
Position	same	changed
Way it faces	same	changed

3. First rotate (turn) a half turn clockwise about the dot.

Then translate (slide) 4 right, 1 down.



Size	same	changed
Shape	same	changed
Angles	same	changed
Position	same	changed
Way it faces	same	changed