



# Warm Up

Grade 8

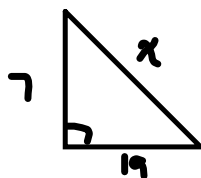
Dec 5, 2018



Assessment Review

## NO CALCULATORS

1) Find the missing length



2) Given the integers  $-2, +10, -7, +3, -8$ , which two would give the greatest product?

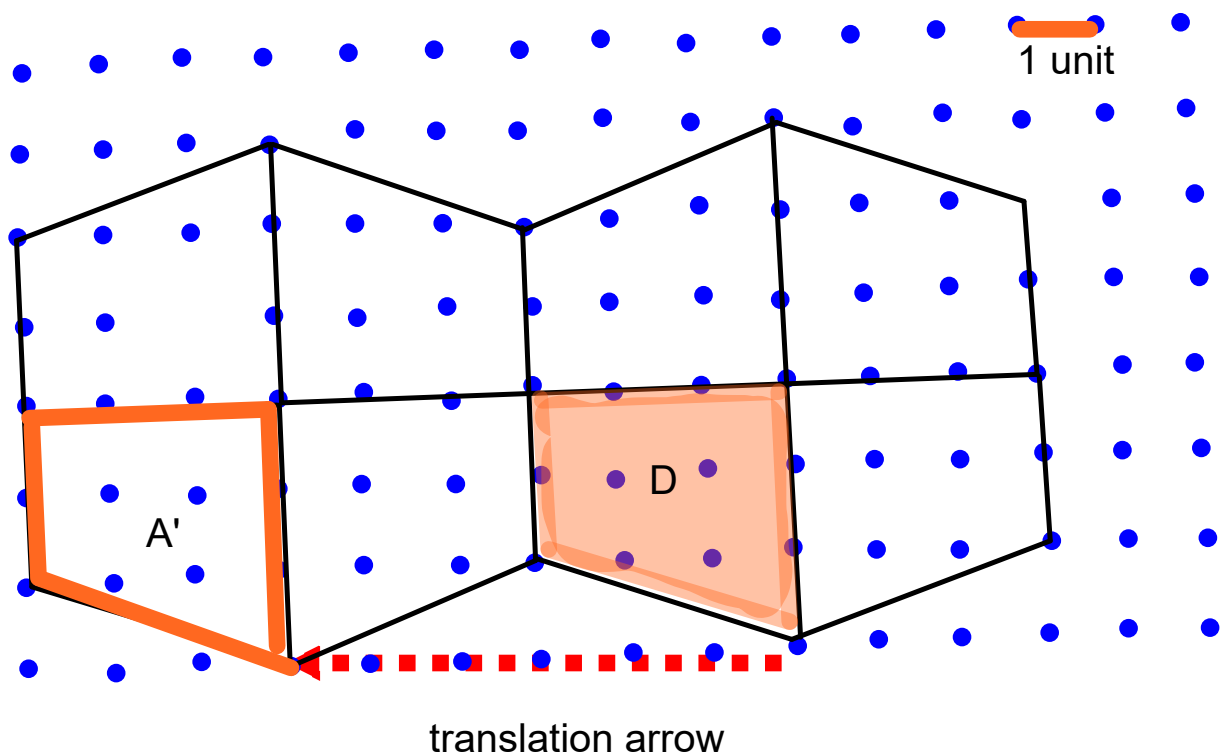
3) find the value of  $y$  given  $7 + 2y = 21$

4) Estimate  $\sqrt{39}$

3) Evaluate  $(-18) \div (+2) - (+4) \times (+2)$

**Translation**- is a slide of a shape in a straight line

- arrow is used to show the movement
- the translated image and the shaded shape are congruent and have the same orientation



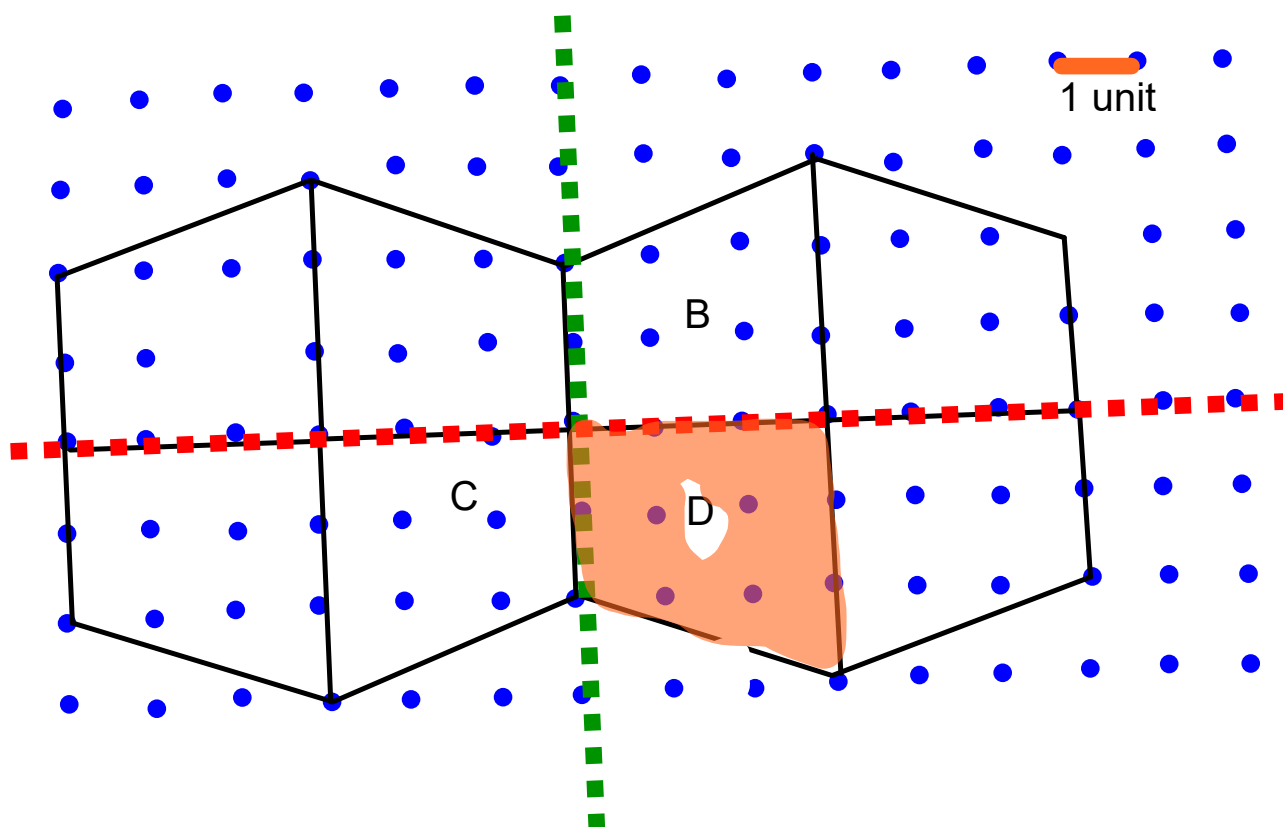
The shaded shape D is translated    units    to give translated image A'

Reflection- find horizontal line of reflection (marked with red)

\*Shape D is reflected in the red line. It reflects image is Shape B

- Find vertical line of reflection (marked with green)

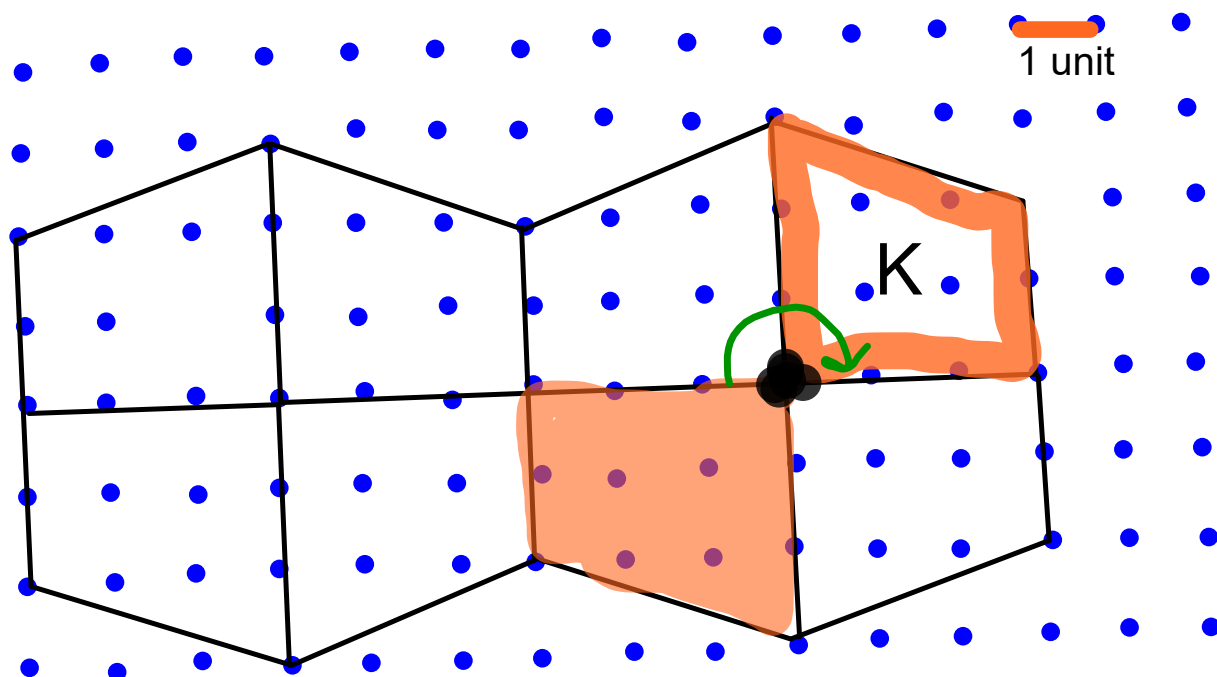
\* The shape D is reflected in the green line of reflection. Its reflection image is Shape C



**Rotation-** need a point of rotation

- The shaded shape D is rotated  $180^\circ$  clockwise about the point of rotation (marked with a BIG dot). The rotation image is shape K

- rotation image of 180 are congruent



Under any transformation, the original shape and its image are always congruent.

**Example 1**

Look at this design of squares.  
Describe each transformation.

- a) a translation for which Square R is an image of Square B
- b) a reflection for which Square R is an image of Square B



**A Solution**

- a) Square R is the image of Square B after a translation 2 units right and 2 units up. The translation arrow shows the movement.



Square R is the image of Square B after a reflection in the slanted line. Use a Mira to verify the image.

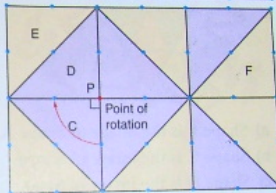
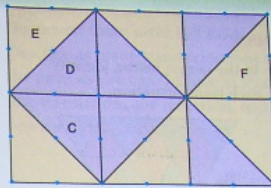


Look at this design of triangles.  
Describe each rotation.

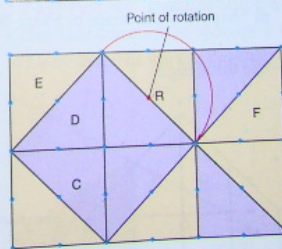
- a) a rotation for which Triangle D is an image of Triangle C
- b) a rotation for which Triangle F is an image of Triangle E

**A Solution**

- a) Triangle D is the image of Triangle C after a rotation of  $90^\circ$  clockwise about P. P is a vertex the two triangles share. The same image is also the result of a rotation of  $270^\circ$  counterclockwise about P.
- b) Triangle F is the image of Triangle E after a rotation of  $180^\circ$  about R. The point of rotation, R, is *not* on the shape being rotated.



Solution



Solution

## Constructing Tessellations

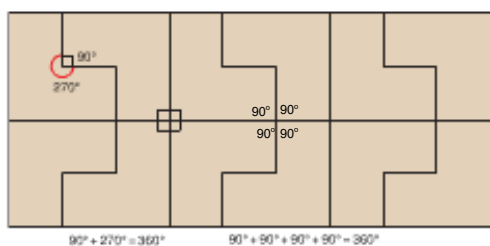
When congruent copies of a shape cover a plane with no overlaps or gaps, we say the shape tessellates.

The design created is called a tessellation.

For copies of a polygon to tessellate, the sum of the angles at any given point where vertices meet must be 360.

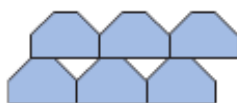
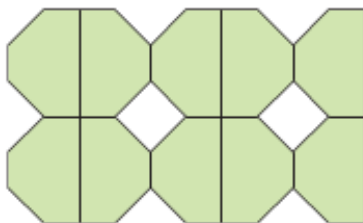
\*Not all shapes tessellate

► This hexagon *does* tessellate.



► This hexagon *does not* tessellate.  
Here are two different pictures to illustrate this.

There are gaps among the hexagons.

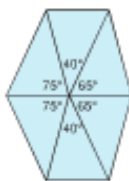


In *Investigate*, you found that triangles and quadrilaterals tessellate.

At any point where vertices meet, the sum of the angle measures is  $360^\circ$ .

All triangles and quadrilaterals will tessellate.

Acute triangle



Obtuse triangle



Six congruent triangles surround a point.

At each point:  
 $75^\circ + 40^\circ + 65^\circ + 65^\circ + 40^\circ + 75^\circ = 360^\circ$

At each point:  
 $20^\circ + 50^\circ + 110^\circ + 20^\circ + 50^\circ + 110^\circ = 360^\circ$

Convex quadrilateral



Concave quadrilateral



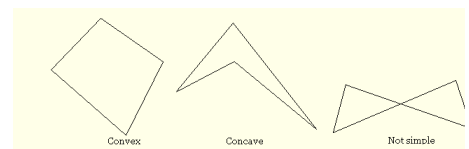
Four congruent quadrilaterals surround a point.

At each point:  
 $80^\circ + 85^\circ + 130^\circ + 65^\circ = 360^\circ$

At each point:  
 $50^\circ + 40^\circ + 22^\circ + 248^\circ = 360^\circ$

It is also possible for combinations of shapes to tessellate.

A quadrilateral that is concave has an angle exceeding  $180^\circ$ . In either case, the quadrilateral is *simple*, which means that the four sides of the quadrilateral only meet at the vertices, two at a time. So that two non-adjacent sides do not cross. A quadrilateral that is not simple is also known as *self-intersecting* to indicate that a pair of his non-adjacent sides intersect.



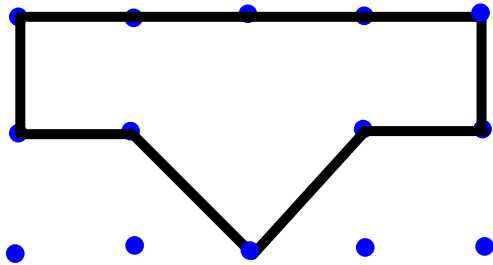
Discuss examples



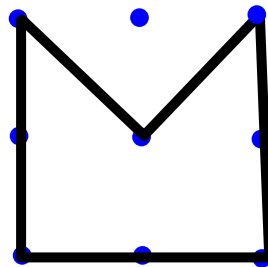
Does the shape tessellate? (You actually have to trace it out. My want to cut an image out and move around)

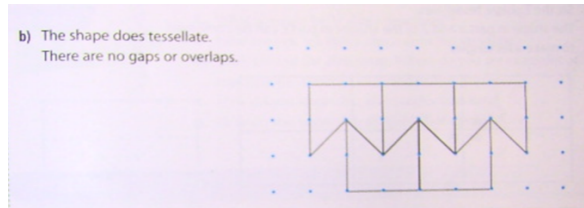
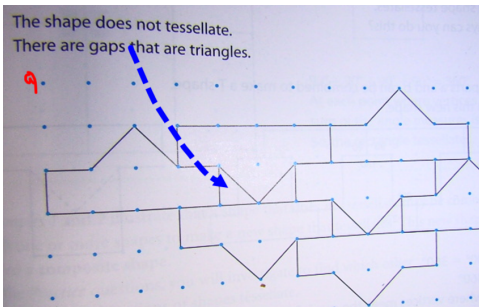
Do on Black board

a)



b)







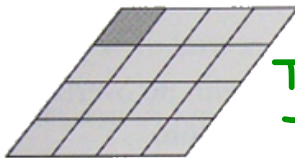
# Warm Up

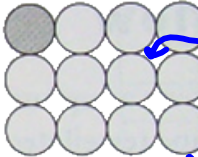
Grade 8

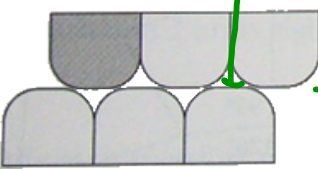
April 27, 2016

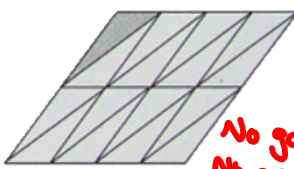


Which of these designs are tessellations? Justify your answer.

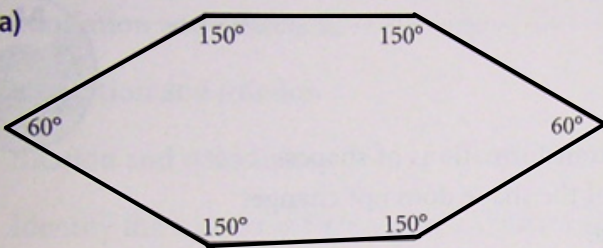
a)  Tessellation  
 → No gaps  
 No overlaps

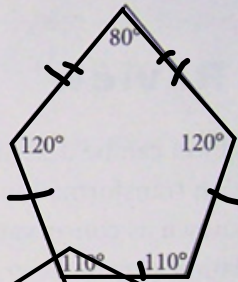
b)  has gaps  
 Not a tessellation

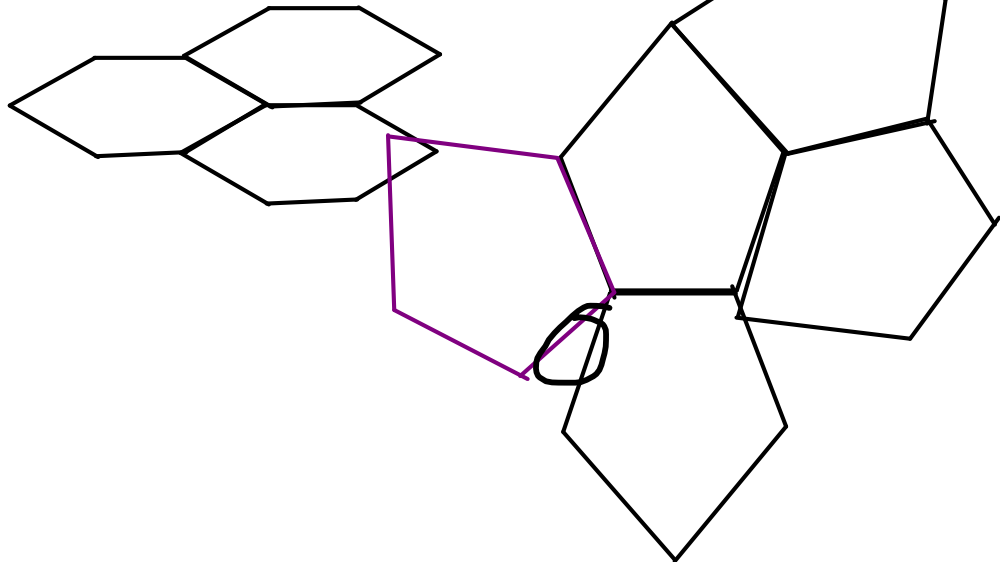
c)  gaps  
 So NOT a  
 Tessellation

d)  No gaps  
 No overlaps  
 IS a tessellation

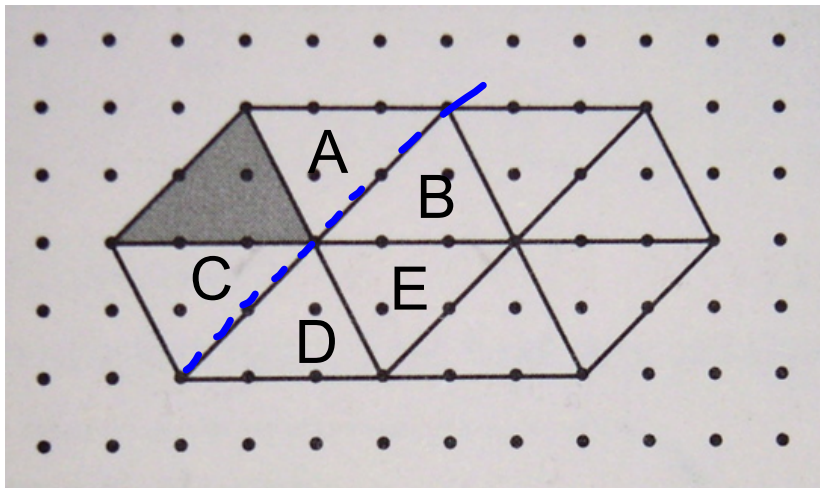
Which of the polygons can be used to create a tessellation?  
 Justify your answer by checking if copies of the polygon can surround a point.

a) 

b) 



Identify the transformations in this tessellation.



Shaded translate  
to B  
D

Shaded Reflects  
onto E  
a long blue  
line

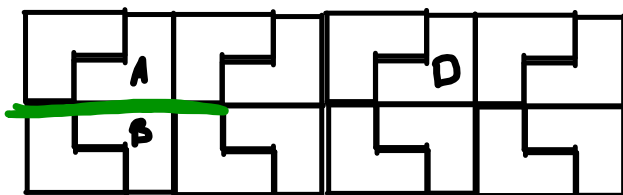
How is the shaded triangle related to each tessellation?  
(Reflections, rotations, or translations)  
Multiple choice:

- a) Translation & Reflections
- b) Translation & rotation
- c) rotation & Reflection

conservation of area: under a transformation, the area of a shape

does not change.

Identify the transformations in this tessellation.



use words or phrases as "translations, reflection, rotation, vertical line, horizontal line, #units up/down/left or right, clockwise or counterclockwise.

How is the shaded shape related to each tessellation?  
(Reflections, rotations, or translations)

A to D *Translate Right*

A to B *Reflect A to B  
by the horizontal mirror*

# Class/Homework

look at example 2 on page 466

page 467

#6, 7(trace out and try),#11, #~~12~~, #14

abcd

1  
b  
c  
f

pg. 475 # 1,3-6

Look at pages 472 - 475

For more examples if you are struggling

## Read page 482

Tomorrow Starting Fractions



# Class/Homework

Look at page 458, 459 Example 1 & 2

Page 460

#5, #6, #7, #8, #9



Homework pg. 451 # 10  
pg. 455 # 1-6

pg. 459 # 1-9