

Name: *Key*

### Chapter 11, 12 and 9 Review

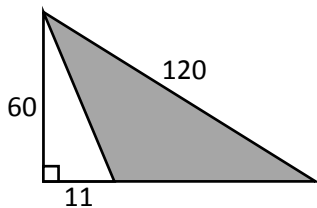
1. A square has an area of  $9 \text{ ft}^2$ . What is its perimeter?

$$12 \text{ ft}$$

2. An equilateral triangle has a perimeter of 18 cm. What is its area?

$$9\sqrt{3} \text{ cm}^2$$

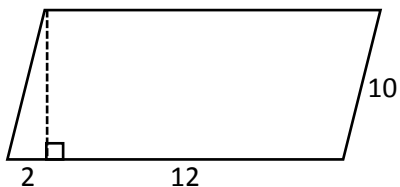
3. Find the perimeter and area of the shaded region.



$$P = 170 + 60\sqrt{3} \text{ units}$$

$$A = 1800\sqrt{3} - 330 \text{ units}^2$$

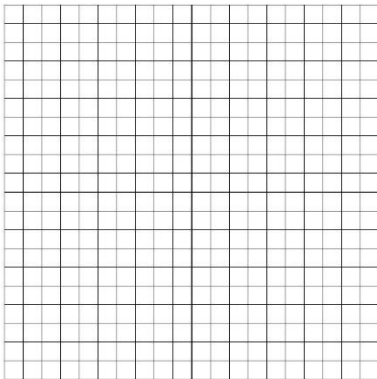
4. Find the perimeter and area of the parallelogram.



$$P = 48 \text{ units}$$

$$A = 56\sqrt{6} \text{ units}^2$$

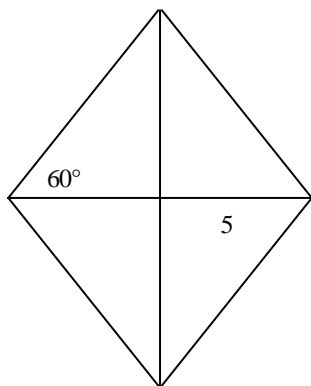
5. Find the perimeter and area of the polygon with the vertices of  $(-2, 3)$ ,  $(1, 3)$ ,  $(5, -3)$  and  $(-2, -3)$ .



$$P = 16 + 2\sqrt{13} \text{ units}$$

$$A = 30 \text{ units}^2$$

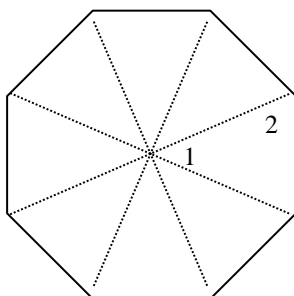
6. Find the perimeter and area of the rhombus.



$$P = 40 \text{ units}$$

$$A = 50\sqrt{3} \text{ units}^2$$

7. Given the regular polygon, find the measures of  $\angle 1$  and  $\angle 2$ .



$$m\angle 1 = 45^\circ$$

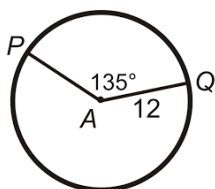
$$m\angle 2 = 67.5^\circ$$

8. A regular decagon has an apothem of 8. Find the perimeter and area of the decagon. Round your answer to the nearest tenth.

$$P = 51.98 \text{ units}$$

$$A = 207.9 \text{ units}^2$$

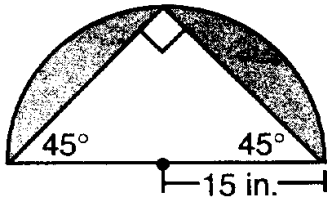
9. Find the length of arc PQ. Find the area of sector PQ.



$$\text{Length } \widehat{PQ} = 9\pi \text{ units}$$

$$\text{Area} = 54\pi \text{ units}^2$$

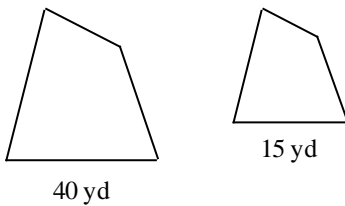
10. Find the perimeter and area of the shaded region.



$$P = 15\pi + 30\sqrt{2} \text{ in}$$

$$A = \frac{225}{2}\pi - 225 \text{ in}^2$$

11. The figures are similar. Give the ratios of perimeters and the ratio of areas from the first figure to the second.



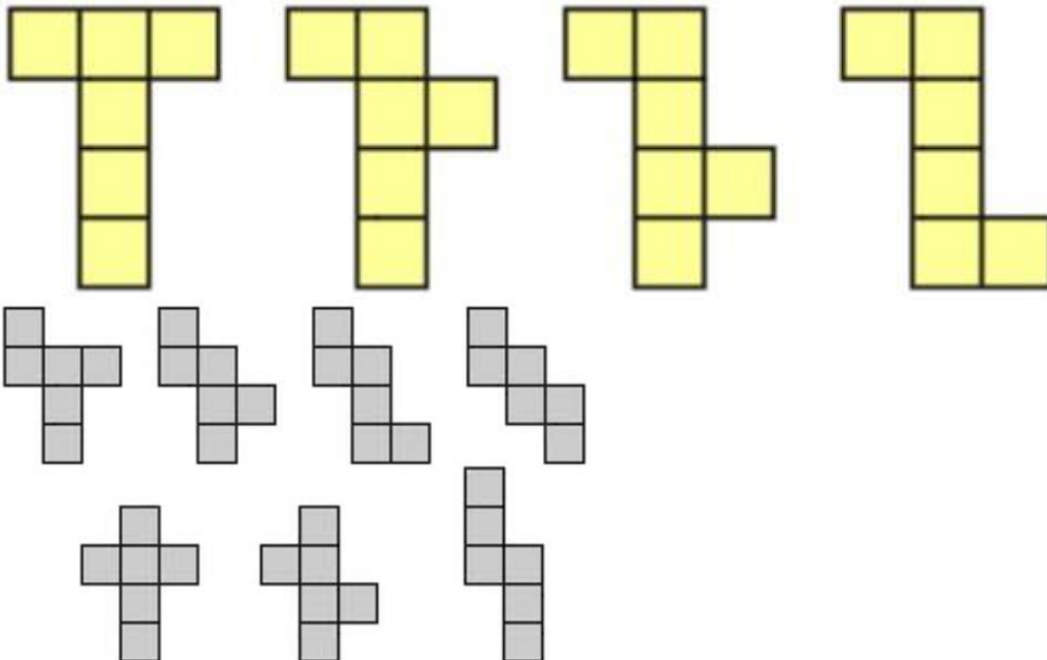
$$\text{Ratios of Perimeters: } \frac{8}{3}$$

$$\text{Ratios of Areas: } \frac{64}{9}$$

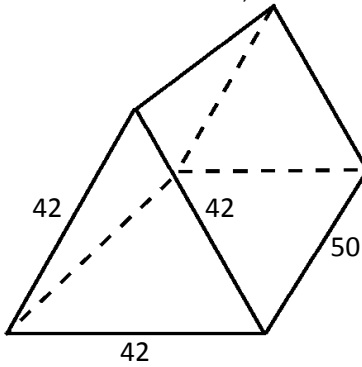
12. A rectangular table cloth costs \$3.25. A similar tablecloth is five times longer and five times wider. How much would you expect to pay for the larger tablecloth?

$$\$81.25$$

13. There are 11 different nets of a cube. 4 are shown. Draw 4 of the remaining 7 nets.



13. Find the lateral area, surface area and volume.

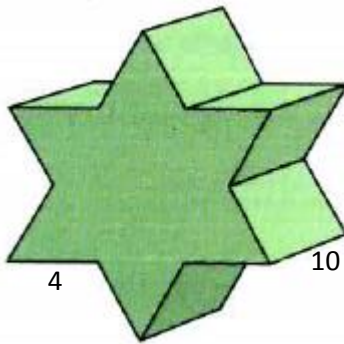


$$LA = 6300 \text{ units}^2$$

$$SA = 6300 + 882\sqrt{3} \text{ units}^2$$

$$V = 22050 \text{ units}^3$$

14. The following prism was created using regular triangles and a regular hexagon. Find the lateral area, surface area and volume of the prism.

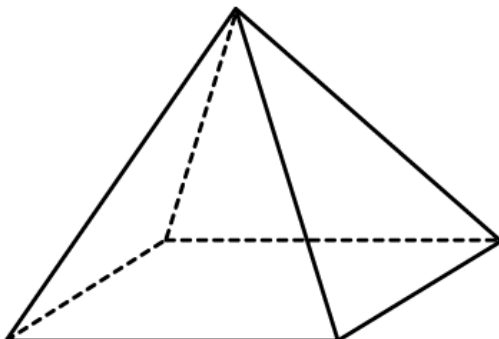


$$LA = 480 \text{ units}^2$$

$$SA = 480 + 96\sqrt{3} \text{ units}^2$$

$$V = 480\sqrt{3} \text{ units}^3$$

15. A square pyramid has base edge length of 12 and slant height of 10. Find the lateral area, surface area and volume.

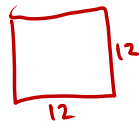
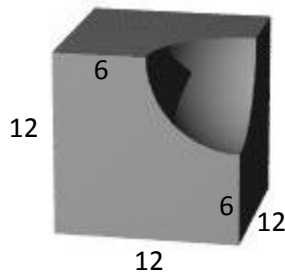


$$LA = 240 \text{ units}^2$$

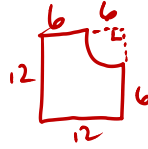
$$SA = 384 \text{ units}^2$$

$$V = 384 \text{ units}^3$$

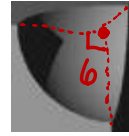
16. Find the surface area and volume of the compound solid.



$$\text{Area} = 12 \cdot 12 = 144$$



$$\text{Area} = 144 - \frac{1}{4} \cdot \pi \cdot 6^2 = 144 - 9\pi$$



$$\text{Area} = \frac{1}{8} \cdot 4 \cdot \pi \cdot 6^2 = 18\pi$$

$$\begin{aligned} SA &= 3 \cdot 144 + 3 \cdot (144 - 9\pi) + 18\pi \\ &= 432 + 432 - 27\pi + 18\pi \end{aligned}$$

$$SA = 864 - 9\pi \text{ units}^2$$

$$V = V_{\text{prism}} - V_{\frac{1}{8} \text{ sphere}}$$

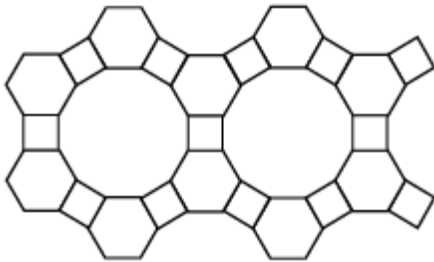
$$= 12 \cdot 12 \cdot 12 - \frac{1}{8} \cdot \frac{4}{3} \cdot \pi \cdot 6^3$$

$$V = 1728 - 36\pi \text{ units}^3$$

17. The surface areas of two similar solids are  $72 \text{ ft}^2$  and  $392 \text{ ft}^2$ . The volume of the larger solid is  $1372 \text{ ft}^3$ . What is the volume of the smaller solid?

$$108 \text{ ft}^3$$

18. Name the tessellation using its vertices. Then verify that the tessellation covers the plane by adding the degrees around each vertex.



$$4, 6, 12$$

$$90^\circ + 120^\circ + 150^\circ = 360^\circ$$

Choose the correct name of the tessellation using its vertices.

19.



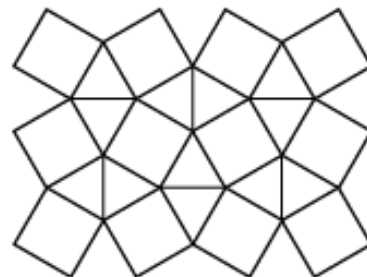
A.) 3, 3, 6, 6

B.) 3, 6, 3, 6

C.) 6, 6, 3, 3

D.) 3, 6, 6, 3

20.



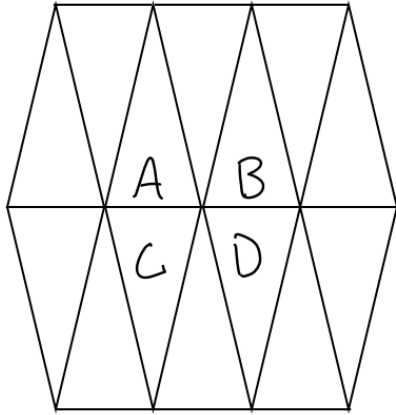
A.) 3, 3, 4, 4, 3

B.) 3, 4, 4, 3, 3

C.) 4, 4, 3, 3, 3

D.) 3, 4, 3, 4, 3

Name the transformation that will map triangle A onto the indicated triangle. There are two answers for each transformation.



21. Triangle B

Translation  
Reflection

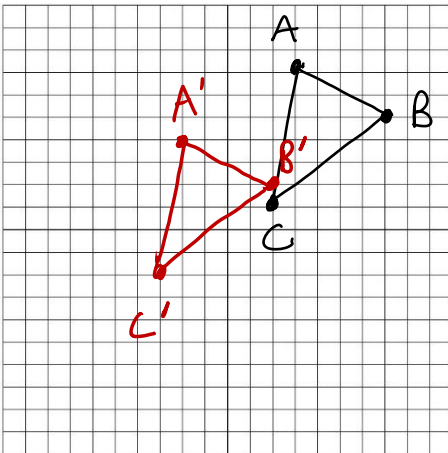
22. Triangle C

Rotation  
Reflection

23. Triangle D

Rotation  
Glide Reflection

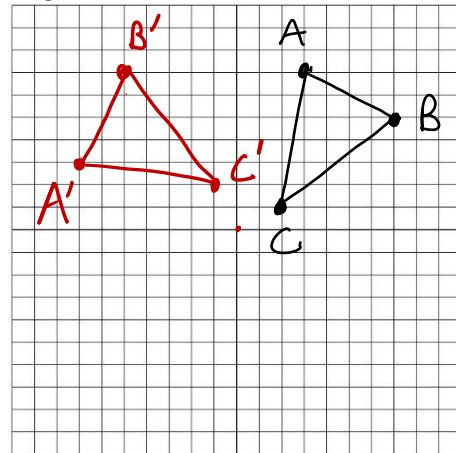
24. Translate  $\triangle ABC$  down 3 units and to the left 5 units.



How have the coordinates changed from  $\triangle ABC$  to  $\triangle A'B'C'$ ?

$$(x, y) \rightarrow (x-5, y-3)$$

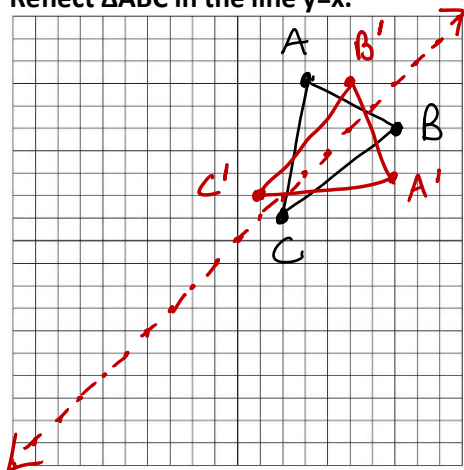
25. Rotate  $\triangle ABC$   $90^\circ$  counterclockwise centered at the origin.



How have the coordinates changed from  $\triangle ABC$  to  $\triangle A'B'C'$ ?

$$(x, y) \rightarrow (-y, x)$$

26. Reflect  $\triangle ABC$  in the line  $y=x$ .

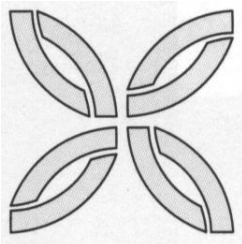


How have the coordinates changed from  $\triangle ABC$  to  $\triangle A'B'C'$ ?

$$(x, y) \rightarrow (y, x)$$

Identify any symmetry.

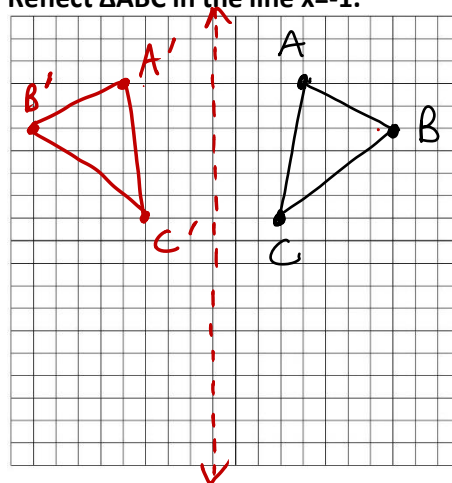
28.



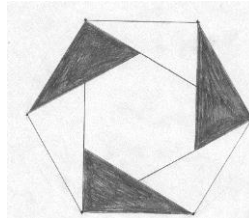
No Line Symmetry

Rotational Symmetry:  
 $90^\circ, 180^\circ, 270^\circ, 360^\circ$

27. Reflect  $\triangle ABC$  in the line  $x=-1$ .



29.



No Line Symmetry

Rotational Symmetry:  
 $120^\circ, 240^\circ, 360^\circ$

30. The letters have been sorted into five groups. What attributes were used to sort the groups. Be as specific as possible using math vocabulary.

B C D E K

Horizontal Line Symmetry  
No Rotational Symmetry

A T U V W Y M

Vertical Line Symmetry  
No Rotational Symmetry

F G J P Q R L

No Line or Rotational Symmetry

H I X O

Horizontal & Vertical Line Symmetry  
Rotational Symmetry:  $180^\circ, 360^\circ$

S Z N

No Line Symmetry  
Rotational Symmetry:  $180^\circ, 360^\circ$

31. The letters below have not been placed in a group. Which group does each belong?

K L M N O