

Self Check #7, Triangles & Polygons

Describe the result of applying each transformation to a figure $[A(x, y)]$ in the coordinate plane. Be specific with direction and distance.

1. $H(x, y) = (x - 2, y + 3)$ translate left 2 and up 3.
2. $R(x, y) = (x + 3, -y)$ translate right 3 and across the x-axis.
3. $D(x, y) = (x, y - 6)$ translate down 6
4. $G(x, y) = (x, -y - 4)$ Reflect across the x-axis and down 4.
5. $F(x, y) = (2x, 3y)$ Dilate x by 2 and y by 3.

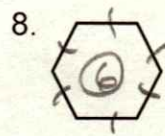
Write the rule for each transformation described below for a given (x, y) coordinate.

6. translation 6 units right and 4 units down
 $(x + 6, y - 4)$
7. reflection across the x-axis and translated up 3 units
 $(x, -y + 3)$

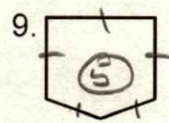
Name each polygon by the number of sides and decide if each polygon is convex or concave.



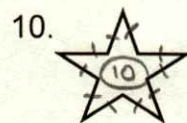
Concave heptagon.



Convex hexagon



Convex Pentagon



Concave decagon

Sketch each of the polygons. Include any necessary congruent marks.

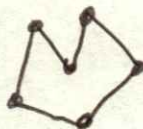
11. Regular Pentagon

⑤



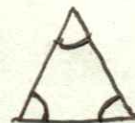
12. Concave Hexagon

⑥



13. Equiangular Triangle

③



The number of sides of a regular polygon is given. Find the measure of an interior angle and an exterior angle for each polygon.

14. $n = 8$

$$180(8-2)$$

$$180(6)$$

$$1080$$

$$1080 \div 8$$

$$(135)$$

$$360 \div 8$$

$$(45)$$

int. $\angle = 135$
ext. $\angle = 45$

15. $n = 5$

$$180(5-2)$$

$$180(3)$$

$$540$$

$$540 \div 5$$

$$(108)$$

$$360 \div 5$$

$$(72)$$

int. $\angle = 108$
ext. $\angle = 72$

16. $n = 10$

$$180(10-2)$$

$$180(8)$$

$$1440$$

$$1440 \div 10$$

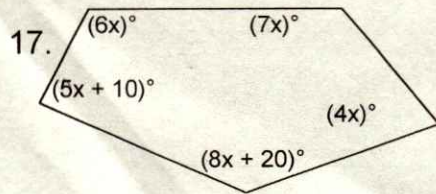
$$(144)$$

$$360 \div 10$$

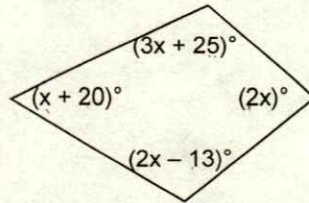
$$(36)$$

int. $\angle = 144$
ext. $\angle = 36$

Solve for x. Show your work!



18. $30x + 30 = 540$
 $-30 -30$
 $30x = 510$
 $x = 17$



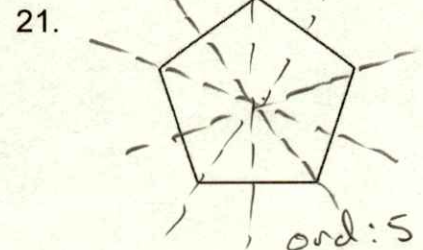
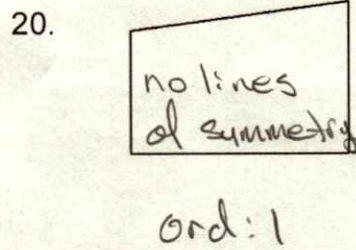
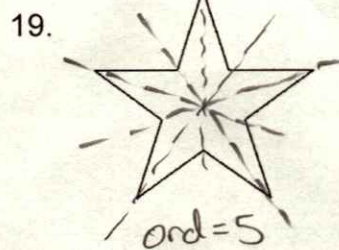
$$8x + 32 = 360$$

$$-32 -32$$

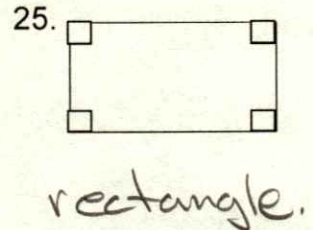
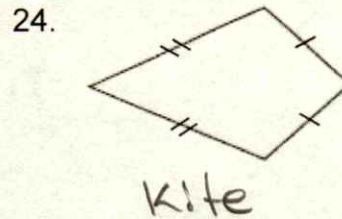
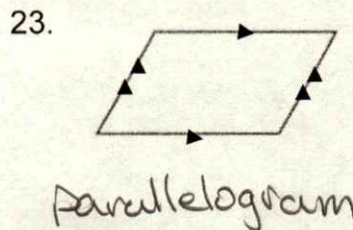
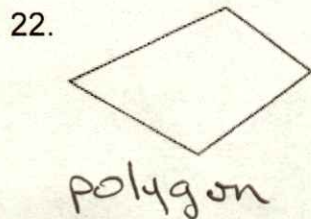
$$8x = 328$$

$$x = 41$$

Draw the lines of symmetry for each shape and the order of rotation.



Classify each quadrilaterals based on their properties.



Find the measures of the numbered angles or variables for each quadrilateral.

