

Name: _____

Date: _____ Period: _____

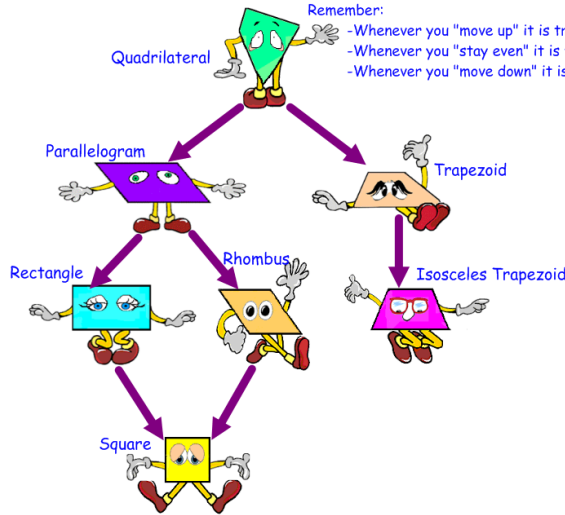
Quadrilateral Word Problems: Review Sheet

Geometry Honors

Directions: Please answer the following on a separate sheet of paper. Completing this review sheet will help you to do well on this test!

The Quadrilateral Family Tree:

Please study and memorize this family tree. There are True/False questions that relate to this!



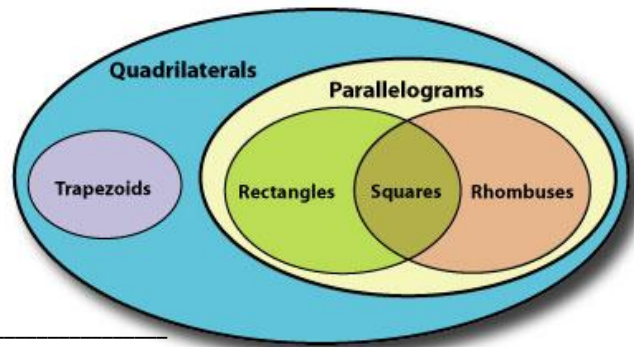
Properties of Quadrilaterals:

Please study the following properties. There will be multiple choice and True/False questions that relate to this!

- (a) **Properties of a Parallelogram:**
diagonals bisect, opposite sides congruent, opposite sides parallel, consecutive angles supplementary, opposite angles congruent.
- (b) **Properties of a Rhombus:**
all of the properties of a parallelogram, consecutive sides congruent, diagonals perpendicular, diagonals bisect angles.
- (c) **Properties of a Rectangle:**
all of the properties of a parallelogram, all right angles, diagonals congruent
- (d) **Properties of a Square:**
all of the properties of a parallelogram, rectangle, and rhombus, all sides are congruent, all right angles
- (e) **Properties of a Trapezoid:**
only one set of parallel sides
- (f) **Properties of an Isosceles Trapezoid:**
all of the properties of a trapezoid, diagonals congruent, opposite angles supplementary, base angles congruent, non parallel sides are congruent

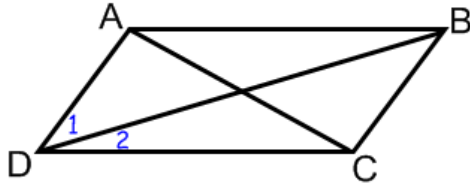
True/False Questions:

- (a) Parallelograms are never trapezoids. _____
- (b) All squares are rhombuses. _____
- (c) A rhombus is a rectangle. _____
- (d) All parallelograms are rectangles. _____
- (e) Isosceles trapezoids are trapezoids. _____
- (f) In a square all sides are congruent. _____
- (g) Parallel sides of an isosceles trapezoid are congruent. _____
- (h) All quadrilaterals have 4 congruent sides. _____
- (i) A square is a rectangle. _____
- (j) A rectangle is a square. _____



Sample Questions:

- 1) In the diagram below of parallelogram $ABCD$ with diagonals AC and BD , the $m\angle 1 = 37$ and the $m\angle DCB = 120$.



What is the measure of $\angle 2$?

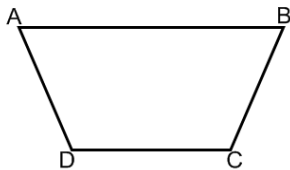
(1) 57

(2) 23

(3) 37

(4) 60

- 2) The diagram below shows isosceles trapezoid $ABCD$ with $AB \parallel DC$ and $AD \cong BC$. If $AD = 4x$ and $BC = 3x + 5$, what is the value of x ? What is the length of BC ?

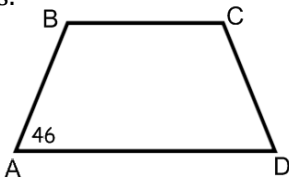


- 3) In rectangle $ABCD$, the length of diagonal AC is represented by $6b - 2$ and the length of diagonal BD is represented by $4b + 2$. Find b and the length of AC .

- 4) In rectangle $ABCD$, the diagonals intersect at E . The length of AE is represented as $3b + 1$ and the length of DE is represented as $4(2b - 6)$. Find the value of b , AC , and BD .

- 5) In rhombus $ABCD$, the length, in inches of AB is $3x + 2$ and BC is $x + 12$. Find the number of inches in length of DC .

- 6) In the following diagram of isosceles trapezoid $ABCD$, $m\angle A = 46$. Find the measure of all of the remaining angles.



- 7) Given parallelogram $ABCD$, diagonals AC and BD intersect at point E . If the length of AE is represented as $11x - 3$ and the length of BE is represented as $12 - 4x$, then what is the measure of AC ?

- 8) In parallelogram $ABCD$, the measure of $\angle A$ exceeds the measure of $\angle B$ by 28 degrees. Find the degree measure of $\angle A$ and $\angle B$.

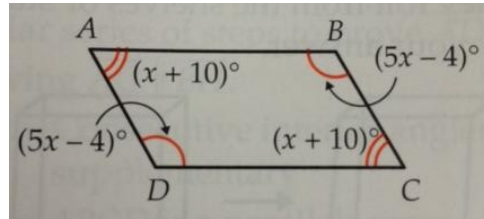
- 9) In square $RSTU$, the $m\angle R = 3x + 33$. What is the value of x ?

- 10) One angle of a parallelogram is 12 less than 5 times the measure of the adjacent angle. What are the measures of these angles?

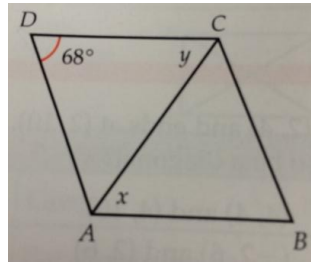
- 11) A square has a perimeter of 36 inches. Find the length of the diagonal in simplest radical form.

- 12) The lengths of the diagonals of a rhombus are 14 and 16. Find the measure of the length of the side of a rhombus.

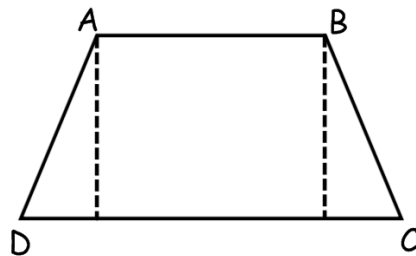
- 13) In rhombus $EFGH$, $m\angle E = 3x - 10$ and $m\angle F = 4(x - 35)$. Find $m\angle G$.
- 14) Given rectangle $ABCD$, $AB = x - 3$, $BC = 24$, and $AD = 2x + 12$. Find the perimeter of this rectangle.
- 15) Given parallelogram $FROG$, $m\angle G = 2x + 10$ and $m\angle R = 8x - 30$. Find the value of x to the nearest hundredth. Find the measure of all of the angles.
- 16) Is the figure below a parallelogram? Explain. If so, find the measure of all of the angles.



- 17) Given rhombus $ABCD$ below, find the value of x and y .



- 18) Using the diagram below of isosceles trapezoid $ABCD$, find the length of BC if the altitude is 4 inches, $AB = 19$, and $CD = 25$.

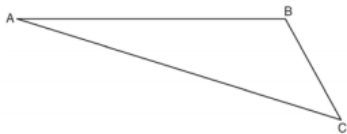


Directions: Please answer the following on a separate sheet of paper. Completing this review sheet will help you to do well on this test!

1) In right triangle ABC , $m\angle C = 3y - 10$, $m\angle B = y + 40$, and $m\angle A = 90$. What type of right triangle is triangle ABC ?

- (1) Scalene (2) Isosceles (3) Equilateral (4) Obtuse

2) On the diagram of $\triangle ABC$ shown below, use a compass and straightedge to construct the perpendicular bisector of \overline{AC} . [Leave all construction marks.]

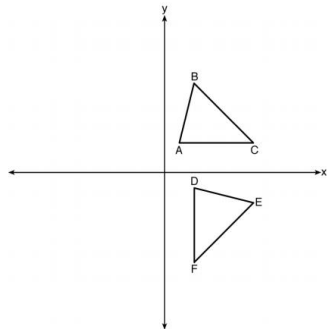


3) The measure of an interior angle of a regular polygon is 120° . How many sides does the polygon have?

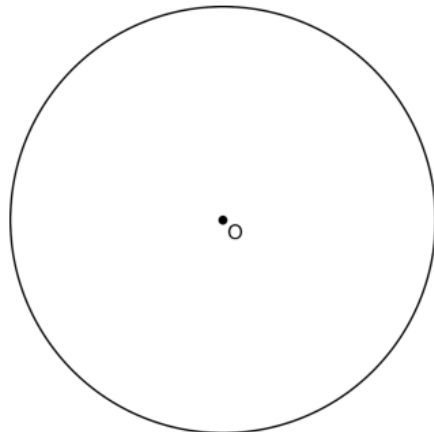
- 1) 5
2) 6
3) 3
4) 4

4) The image of $\triangle ABC$ after a rotation of 90° clockwise about the origin is $\triangle DEF$, as shown below. Which statement is true?

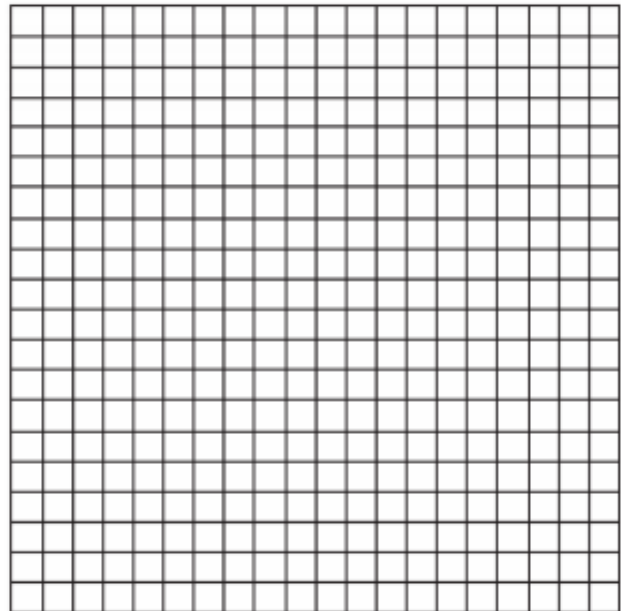
- (1) $\overline{BC} \cong \overline{DE}$
(2) $\overline{AB} \cong \overline{DF}$
(3) $\angle C \cong \angle E$
(4) $\angle A \cong \angle D$



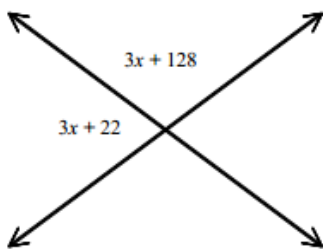
5) Using a straightedge and a compass, construct a square inscribed in circle O below. [Leave all construction marks.]



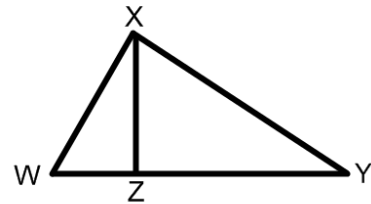
6) Triangle ABC has vertices $A(1,0)$, $B(6,3)$, and $C(4,5)$. On the accompanying grid, draw and label $\triangle ABC$. Graph and state the coordinates of $\triangle A'B'C'$, the image of $\triangle ABC$ after the composition $D_2 \circ r_{(0,0)}$.



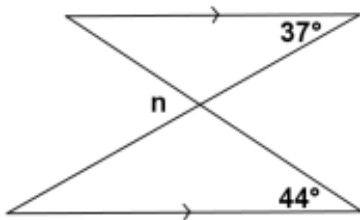
7) Solve for x .



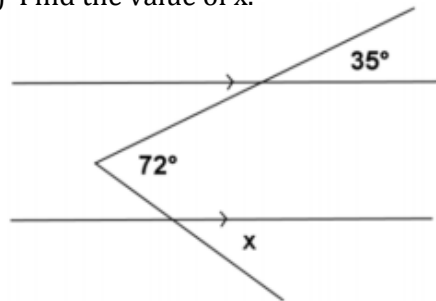
8) In $\triangle WXY$, XZ is the altitude drawn to side WY . Find the value of x if $m\angle Y = 2x - 5$ and $m\angle ZXY = 2x + 21$. Round to the nearest *tenth*, if necessary.



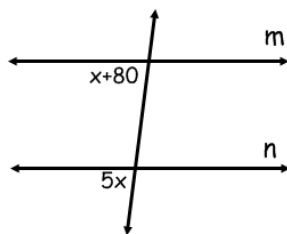
9) Find $m < n$.



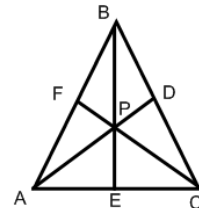
10) Find the value of x .



11) In the diagram below $m \parallel n$. Using the diagram, find the value of x .



12) In triangle ABC , medians \overline{AD} , \overline{BE} , and \overline{CF} are concurrent at point P . If $FP = x + 1$ and $FC = 6x - 12$, then what is the value of x ?



Answer Key:

True/False

- (a) True (b) true (c) false (d) false (e) true (f) true (g) false
(h) false (i) true (j) false

Sample Questions:

- 1.) (2) 2.) $x = 5$; $BC = 20$ 3.) $b = 2$; $AC = 10$ 4.) $b = 5$; $AC = BD = 32$
5.) $x = 5$; $DC = 17$ 6.) $\angle D = 46$; $\angle A = \angle B = 134$ 7.) $x = 1$; $AC = 8$ 8.) $\angle B = 71$; $\angle A = 99$
9.) $x = 19$ 10.) 32 & 99 11.) $s = 9$; diagonal = $9\sqrt{2}$ 12.) $\sqrt{105}$
13.) $m \angle G = \frac{92}{7}$ 14.) 54 15.) $x = 6.67$; $\angle R = \angle G = 23.36$ 16.) 39 & 141
17.) $x = y = 56$ 18.) $BC = 5$

Review Questions:

- 1.) (1) 2.) correct construction 3.) (2) 4.) (4)
5.) correct construction 6.) $A'(-2,10)$, $B'(-12,-6)$, $C'(-8,-10)$ 7.) $x = 5$ 8.) $x = 18.5$
9.) $n = 81$ 10.) $x = 37$ 11.) $x = 20$ 12.) $x = 5$