Mr. Wilfong's Snow Packet

Math: Geometry

Days 11 – 16

Instructions: Read ALL instructions carefully.

1. This document contains 5 of your snow packet assignments for this class. Please do one assignment per day.

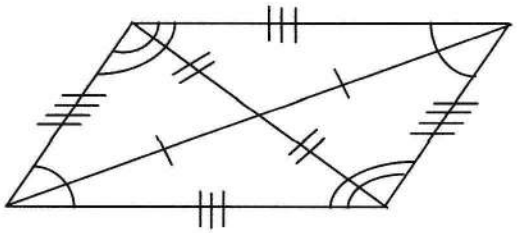
2. Be sure to follow all directions on the pages below and given by your teacher in class. You may be asked to turn in work on your own paper or digitally.

3. Turn in the completed work to your teacher on the day you return to school. If you have technology issues, family emergencies, or illness you may have up to five days to turn work in.

4. Read the reference sheets first!!!

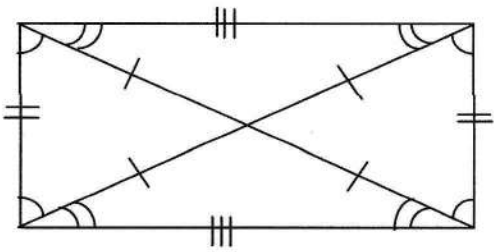
Summary Sheet Quadrilateral Properties

PARALLELOGRAMS (rectangles, squares, and rhombi):



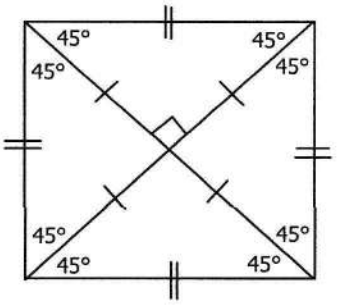
1) Opposite sides of a parallelogram are congruent.
2) Opposite angles of a parallelogram are congruent.
3) Consecutive angles in a parallelogram are supplementary.
4) The diagonals of a parallelogram bisect each other.

RECTANGLES:



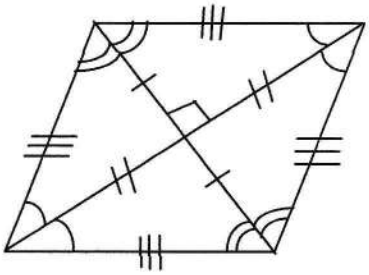
1) Opposite sides are congruent (they equal each other).
2) Opposite angles are congruent (they equal each other).
3) Consecutive angles are supplementary (they add up to 180).
4) Diagonals bisect each other (the parts are equal).
5) Diagonals are congruent (they equal each other).
6) All four corner angles are 90°.

SQUARES:



1) Opposite sides are congruent (they equal each other).
2) Opposite angles are congruent (they equal each other).
3) Consecutive angles are supplementary (they add up to 180).
4) Diagonals bisect each other (the parts are equal).
5) Diagonals are congruent (they equal each other).
6) All four corner angles are 90°.
7) Diagonals perpendicular (the form right angles in the middle).
8) Diagonals bisect angles (the angles equal to each other).

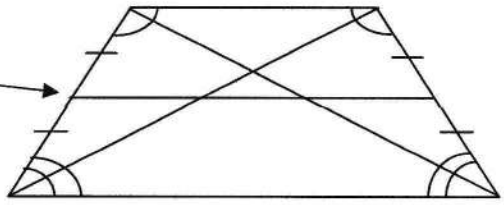
RHOMBI:



1) Opposite sides are congruent (they equal each other).
2) Opposite angles are congruent (they equal each other).
3) Consecutive angles are supplementary (they add up to 180).
4) Diagonals bisect each other (the parts are equal).
5) Diagonals perpendicular (the form right angles in the middle).
6) Diagonals bisect angles (the angles are equal to each other).
7) All four sides are congruent.
8) The diagonals are NOT congruent.

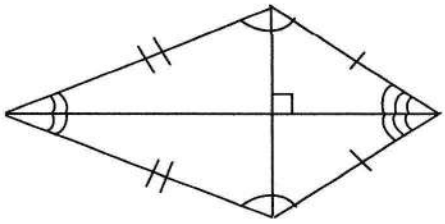
ISOSCELES TRAPEZOIDS:

Median = ½ (base + base)



1) Lower two base angles are congruent (they equal each other).
2) Upper two base angles are congruent (they equal each other).
3) The diagonals are congruent (they equal each other).
4) opposite angles are supplementary (they add up to 180).

Kite

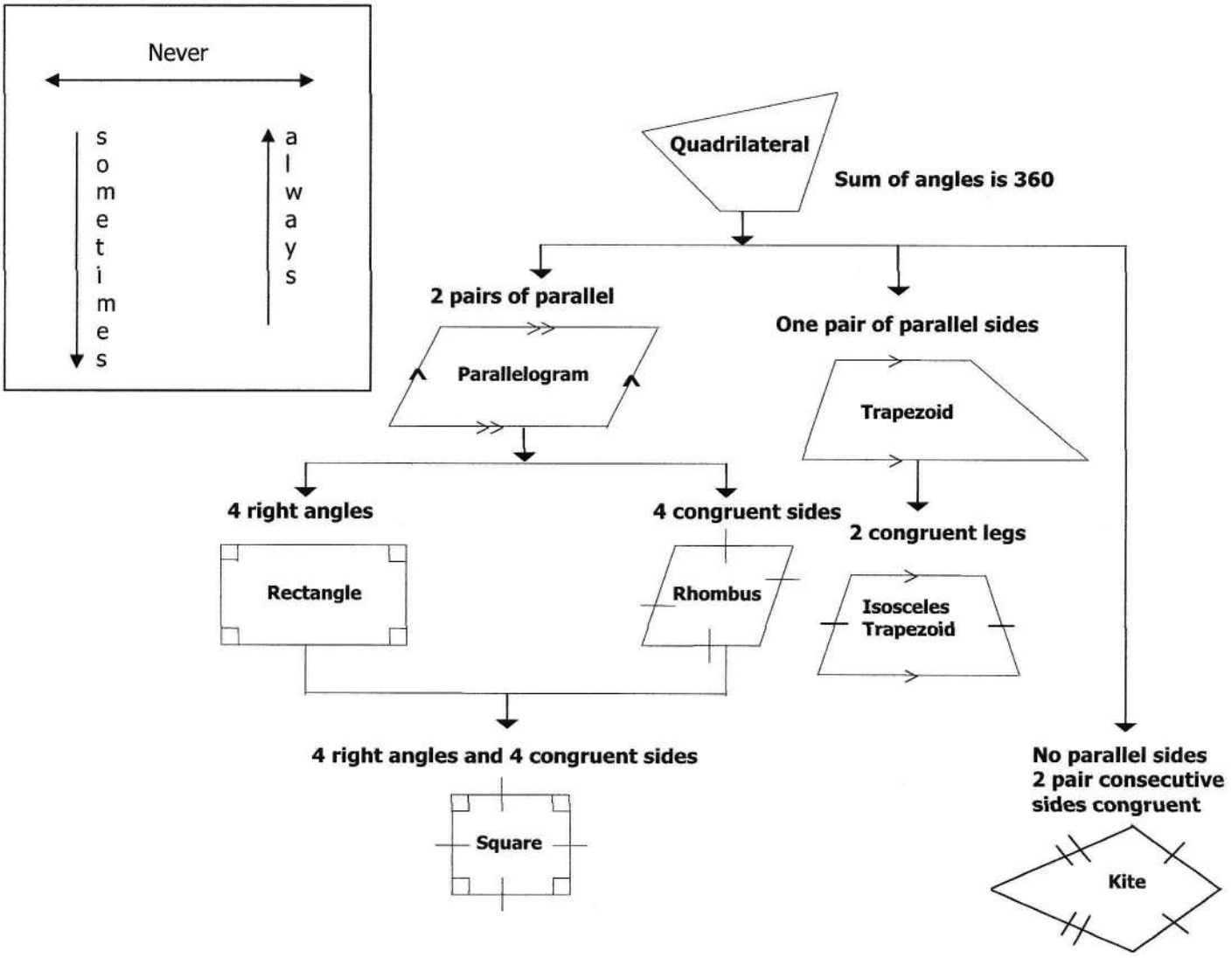


1) Two pairs of consecutive sides congruent, but opposite sides not congruent
2) Diagonals perpendicular.
3) Exactly one pair of angles congruent.
4) One pair of angles bisected.

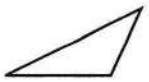
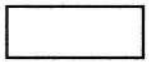
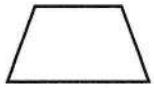
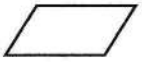
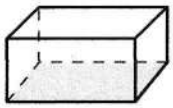
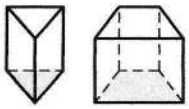
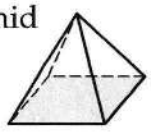
SUMMARY CHARTS:

Special Quadrilateral	Diagonals		Diagonals Bisect	
	Congruent	Perpendicular	Each Other	Angles
Parallelogram	**Sometimes**	**Sometimes**	**Always**	**Sometimes**
Rectangle	**Always**	**Sometimes**	**Always**	**Sometimes**
Rhombus	**Sometimes**	**Always**	**Always**	**Always**
Square	**Always**	**Always**	**Always**	**Always**
Trapezoid	**Sometimes**	**Never**	**Never**	**Never**
Isosceles Trapezoid	**Always**	**Never**	**Never**	**Never**
Kite	**Never**	**Always**	**Only one diagonal**	**Only one angle**

Property	Rectangle	Rhombus	Square
1. All the properties of a parallelogram?	**Yes**	**Yes**	**Yes**
2. Equiangular (4 right corner angles?)	**Yes**	**No**	**Yes**
3. Equilateral (4 congruent sides?)	**No**	**Yes**	**Yes**
4. Diagonals bisect angles?	**No**	**Yes**	**Yes**
5. Diagonals congruent?	**Yes**	**No**	**Yes**
6. Diagonals perpendicular?	**No**	**Yes**	**Yes**



Formula Reference Sheet

Shape	Formulas for Area (A) and Circumference (C)
Triangle 	$A = \frac{1}{2}bh = \frac{1}{2} \times$ base $\times$ height
Rectangle 	$A = lw =$ length $\times$ width
Trapezoid 	$A = \frac{1}{2}(b_1 + b_2)h = \frac{1}{2} \times$ sum of bases $\times$ height
Parallelogram 	$A = bh =$ base $\times$ height
Circle 	$A = \pi r^2 = \pi \times$ square of radius $C = 2\pi r = 2 \times \pi \times$ radius $C = \pi d = \pi \times$ diameter
Figure	**Formulas for Volume (V) and Surface Area (SA)**
Rectangular Prism 	$V = lwh =$ length $\times$ width $\times$ height $SA = 2lw + 2hw + 2lh$ $=$ 2(length $\times$ width) + 2(height $\times$ width) + 2(length $\times$ height)
General Prisms 	$V = Bh =$ area of base $\times$ height $SA =$ sum of the areas of the faces
Right Circular Cylinder 	$V = Bh =$ area of base $\times$ height $SA = 2B + Ch =$ (2 $\times$ area of base) + (circumference $\times$ height)
Square Pyramid 	$V = \frac{1}{3}Bh = \frac{1}{3} \times$ area of base $\times$ height $SA = B + \frac{1}{2}P\ell$ $=$ area of base + ($\frac{1}{2} \times$ perimeter of base $\times$ slant height)
Right Circular Cone 	$V = \frac{1}{3}Bh = \frac{1}{3} \times$ area of base $\times$ height $SA = B + \frac{1}{2}C\ell =$ area of base + ($\frac{1}{2} \times$ circumference $\times$ slant height)
Sphere 	$V = \frac{4}{3}\pi r^3 = \frac{4}{3} \times \pi \times$ cube of radius $SA = 4\pi r^2 = 4 \times \pi \times$ square of radius

Equations of a Line

Standard Form:

$Ax + By = C$

where A and B are not both zero

Slope-Intercept Form:

$y = mx + b$ or $y = b + mx$

where m = slope and b = y-intercept

Point-Slope Form:

$y - y_1 = m(x - x_1)$

where m = slope, (x_1, y_1) = point on line

Coordinate Geometry Formulas

Let (x_1, y_1) and (x_2, y_2) be two points in the plane.

$$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1} \text{ where } x_2 \neq x_1$$

$$\text{midpoint} = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$

$$\text{distance} = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Distance Traveled

$$d = rt$$

distance = rate × time

Simple Interest

$$I = prt$$

interest = principal × interest rate × time

Polygon Angle Formulas

Sum of degree measures of the interior angles of a polygon:

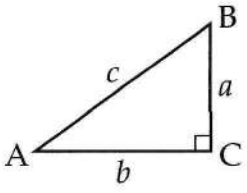
$$180(n - 2)$$

Degree measure of an interior angle of a regular polygon:

$$\frac{180(n - 2)}{n}$$

where n is the number of sides of the polygon

Formulas for Right Triangles



Pythagorean Theorem:

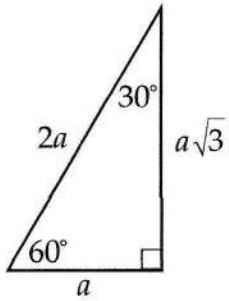
$$a^2 + b^2 = c^2$$

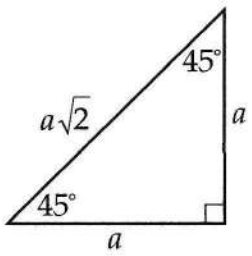
$$\sin A = \frac{a}{c} = \left(\frac{\text{opposite}}{\text{hypotenuse}}\right)$$

$$\cos A = \frac{b}{c} = \left(\frac{\text{adjacent}}{\text{hypotenuse}}\right)$$

$$\tan A = \frac{a}{b} = \left(\frac{\text{opposite}}{\text{adjacent}}\right)$$

Special Triangles



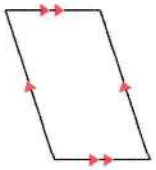


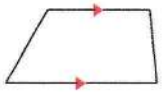
Kuta Software - Infinite Geometry Day 11/1 Name_____

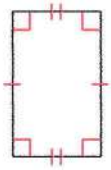
Classifying Quadrilaterals

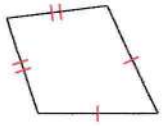
Date_____ Period____

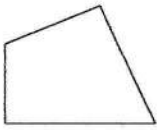
State the most specific name for each figure.

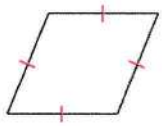
1) 

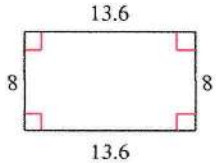
2) 

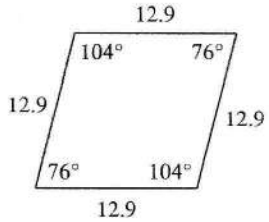
3) 

4) 

5) 

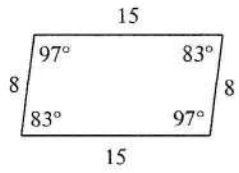
6) 

7) 

8) 

11/2

9)



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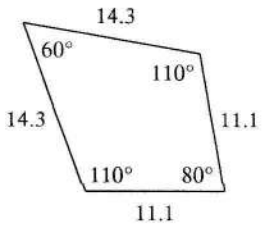
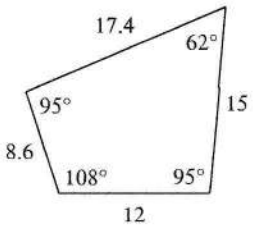
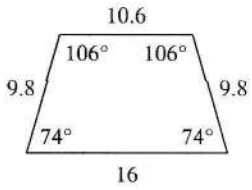


11)

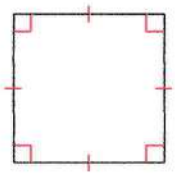


12)



State all possible name for each figure.

13)



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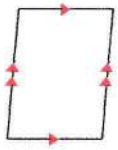

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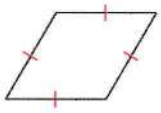
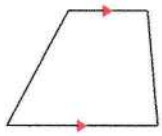


16)



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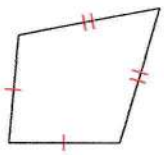

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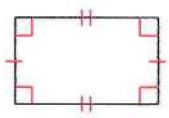


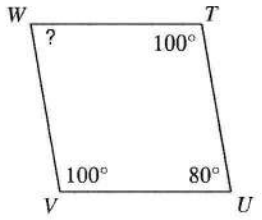
Kuta Software - Infinite Geometry Day 12/1 Name_____

Angles in Quadrilaterals

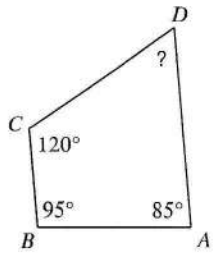
Date_____ Period____

Find the measure of each angle indicated.

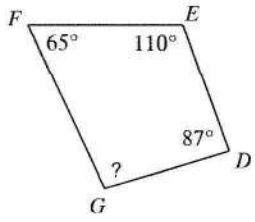
1)



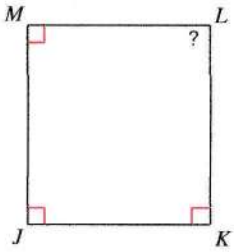
2)



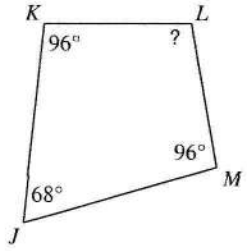
3)



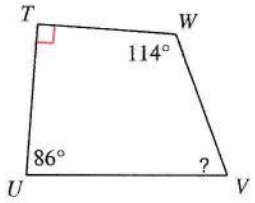
4)



5)



6)



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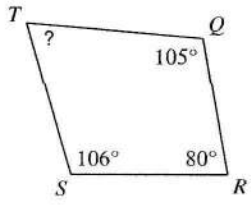

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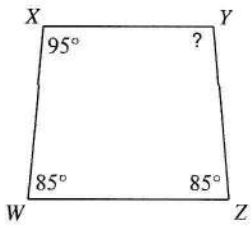
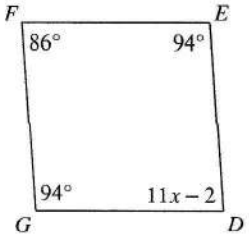
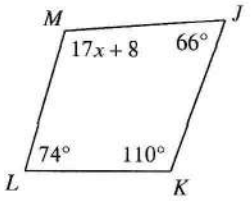


Solve for x. 12/2

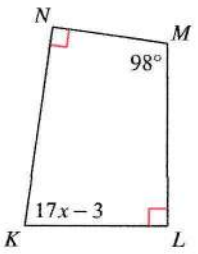
9)



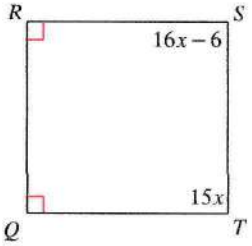
10)



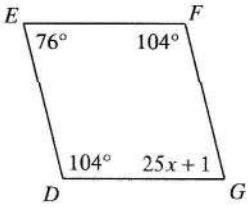
11)



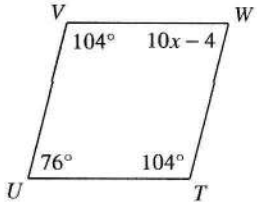
12)



13)

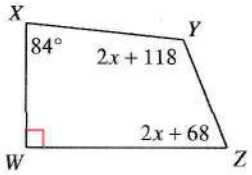


14)

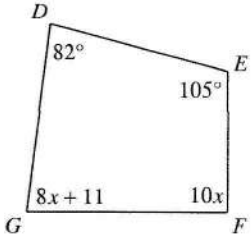


Find the measure of each angle indicated.

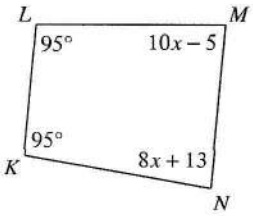
15) $m\angle Y$



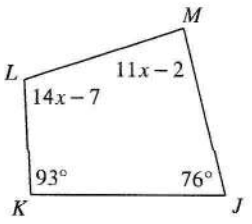
16) $m\angle F$



17) $m\angle M$



18) $m\angle M$



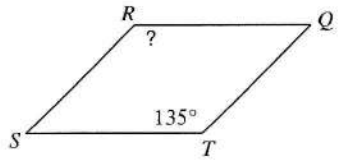
Kuta Software - Infinite Geometry Day 13/1 Name_____

Properties of Parallelograms

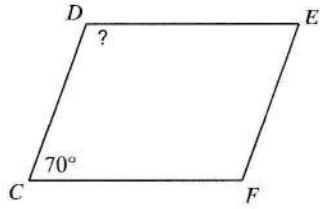
Date_____ Period____

Find the measurement indicated in each parallelogram.

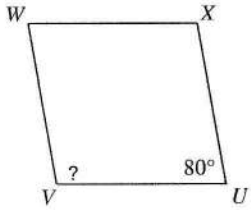
1)



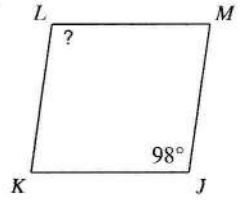
2)



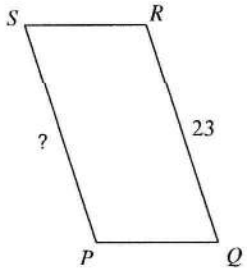
3)



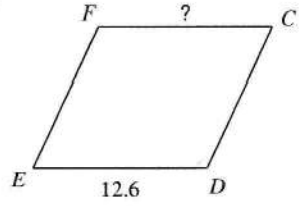
4)



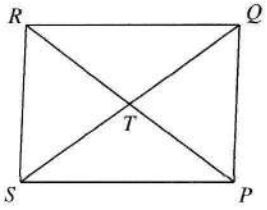
5)



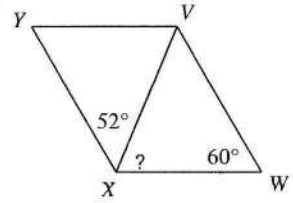
6)



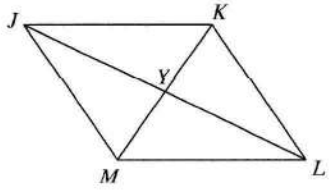
7) $RT = 19.8$
Find RP



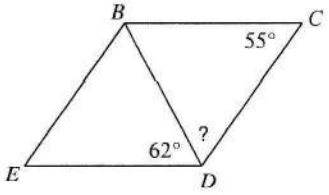
8)



9) $KM = 23.4$
Find YM

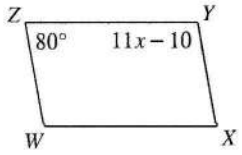


10)

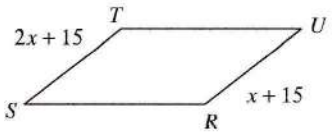


Solve for x. Each figure is a parallelogram. 13|2

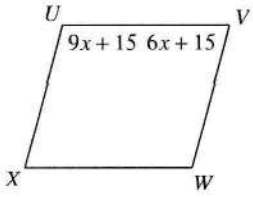
11)



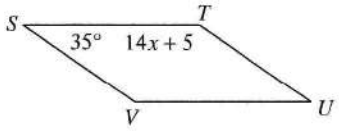
12)



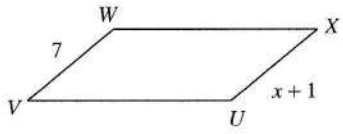
13)



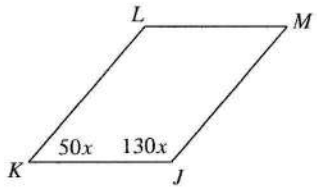
14)



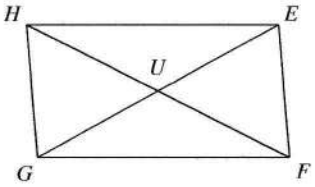
15)



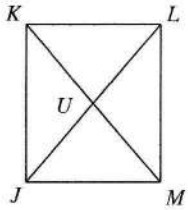
16)



17) $UH = 19$
$FH = 5x - 7$

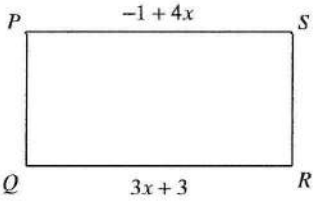


18) $KU = 3x + 3$
$UM = 4x - 4$

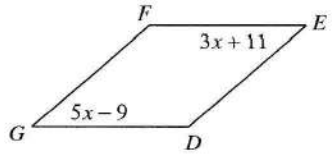


Find the measurement indicated in each parallelogram.

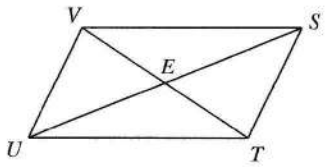
19) Find RQ



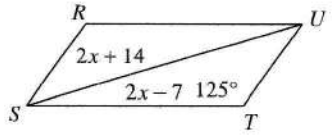
20) Find $m\angle G$



21) $TE = 4 + 2x$
$EV = 4x - 4$
Find TE



22) Find $m\angle TSR$



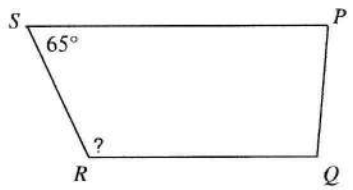
Kuta Software - Infinite Geometry Day 14/1 Name_____

Properties of Trapezoids

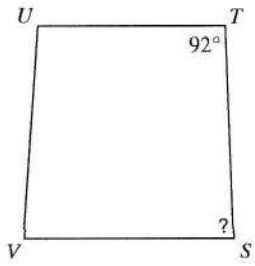
Date_____ Period____

Find the length of the angle indicated for each trapezoid.

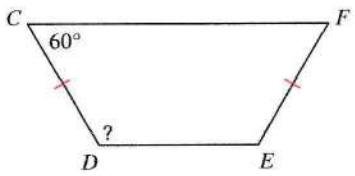
1)



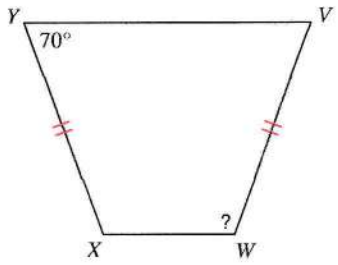
2)



3)

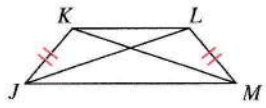


4)

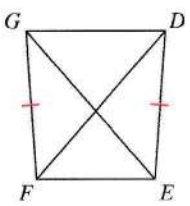


Find the length of the diagonal indicated for each trapezoid.

5) $KM = 22$
Find JL

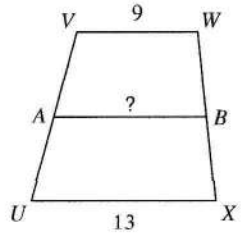


6) $DF = 8.7$
Find EG

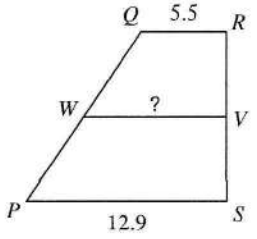


Find the length of the median of each trapezoid.

7)

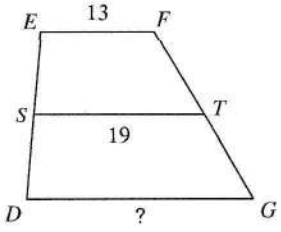


8)

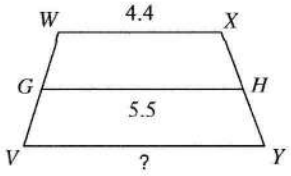


Find the lengh of the base indicated for each trapezoid.

9)

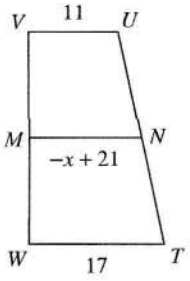


10)

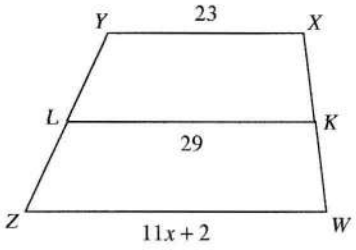


Solve for x. Each figure is a trapezoid. 14/2

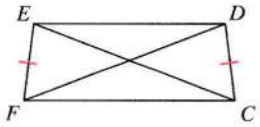
11)



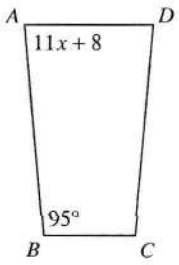
12)



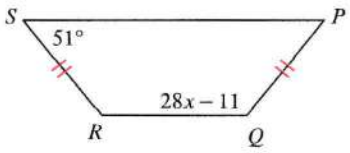
13) $EC = 20$
$FD = 5x - 10$



14)

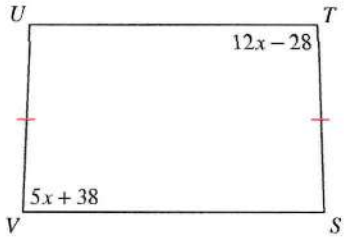


15)

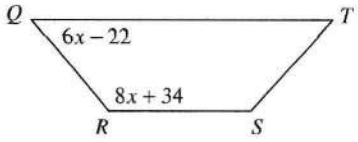


Find the length of the angle indicated for each trapezoid.

16) Find $m\angle V$

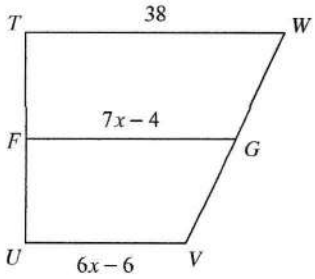


17) Find $m\angle R$



Find the lengh of the base indicated for each trapezoid.

18) Find VU



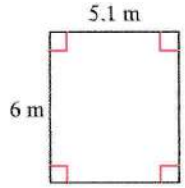
Kuta Software - Infinite Geometry Day 15/1 Name_____

Area of Triangles and Quadrilaterals

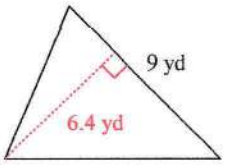
Date_____ Period____

Find the area of each.

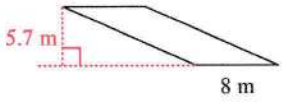
1)



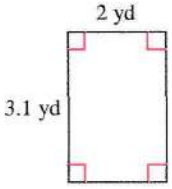
2)



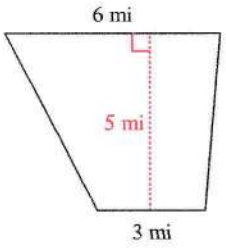
3)



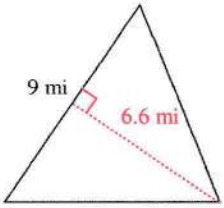
4)



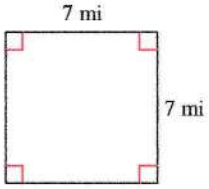
5)



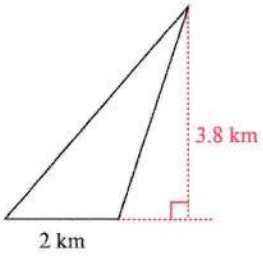
6)



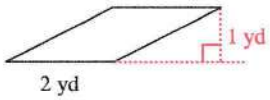
7)



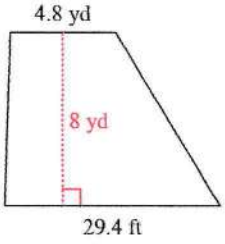
8)



9)

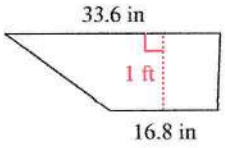


10)



Day 15/2

11)



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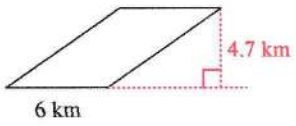

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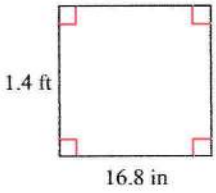

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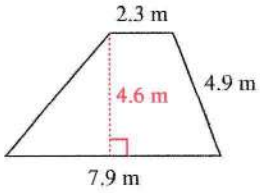

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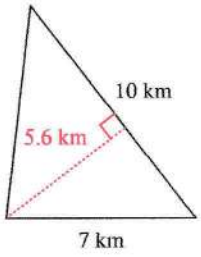

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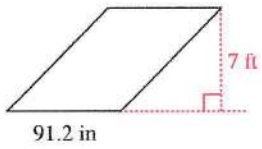

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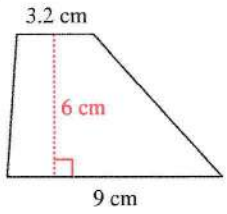

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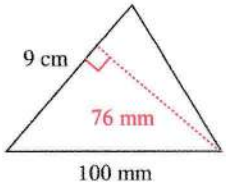

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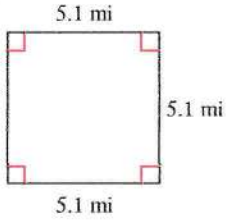

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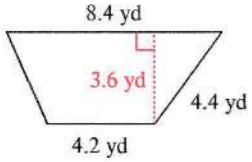


Critical thinking questions:

21) Sketch and label a trapezoid that has an area of 100 cm^2.

22) Change one number in the diagram you drew for the last question so that the area is now 200 cm^2.

Kuta Software - Infinite Geometry

Day 16/1

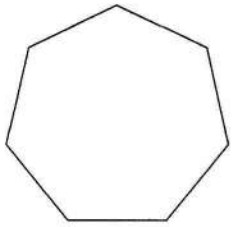
Name_____

Introduction to Polygons

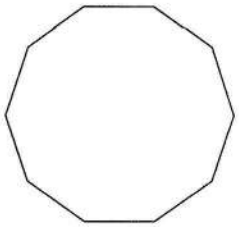
Date_____ Period____

Write the name of each polygon.

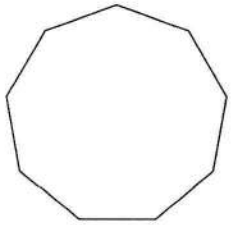
1)



2)



3)



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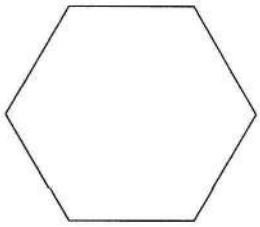

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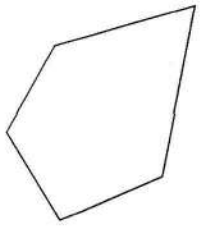

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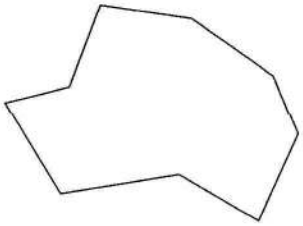

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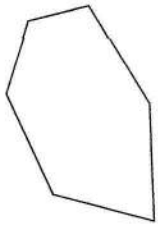

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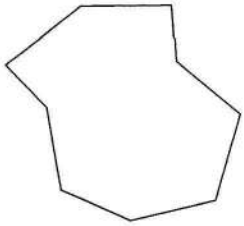
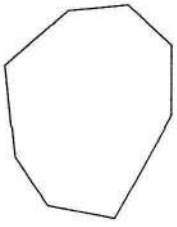
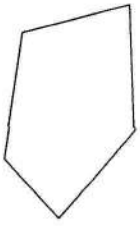


State if each polygon is concave or convex.

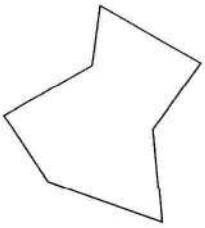
9)

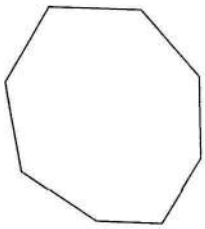


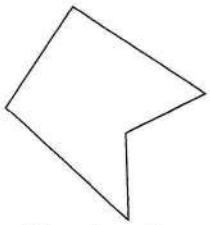
10)

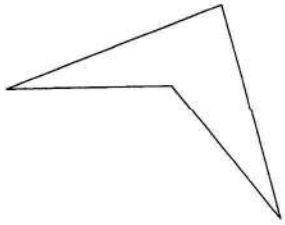


Day 16/2

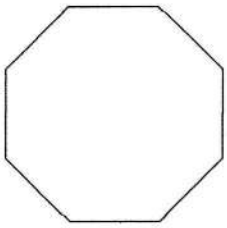
11) 

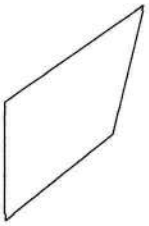
12) 

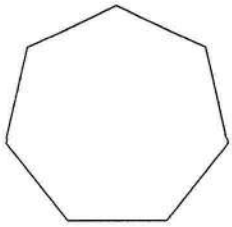
13) 

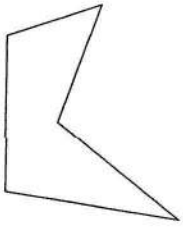
14) 

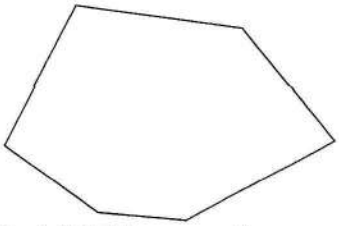
State if each polygon is regular or not.

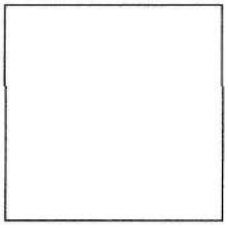
15) 

16) 

17) 

18) 

19) 

20) 

Critical thinking questions:

21) Sketch a concave hexagon.

22) Which are impossible:
Regular convex octagon
Concave trapezoid
Convex irregular 20-gon
Concave triangle
Concave equilateral pentagon