

Polygon Unit Test Review

Directions: You must show all work for all problems below. For the problems where you have a quadrilateral and use their properties, justify the set up, and provide the geometry. (Some may not have the information to do everything i.e. if no points are there, you cannot show the geometry). Failure to do so will result in a zero.

1. Find the sum of the measures of the interior angles of a convex 39-gon.

SKIP

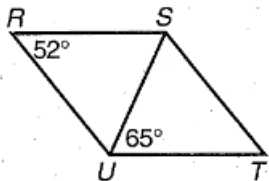
2. Find the sum of the measures of the interior angles of a convex 26-gon.

SKIP

3. Fill in the following table:

Number of Sides	Name of Polygon
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
n	

4. For parallelogram $RSTU$, find $m\angle RSU$ and $m\angle RUS$.



$$m\angle RSU = \underline{\hspace{2cm}}$$

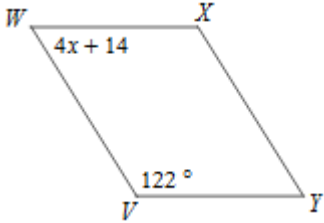
Geometry: _____ Justify: _____

$$m\angle RUS = \underline{\hspace{2cm}}$$

Geometry: _____ Justify: _____

5. Solve for the missing angle or variable for the following PARALLELOGRAMS.

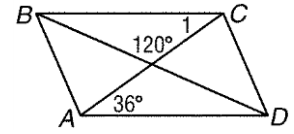
a.) Find x .



Geometry:

Justify:

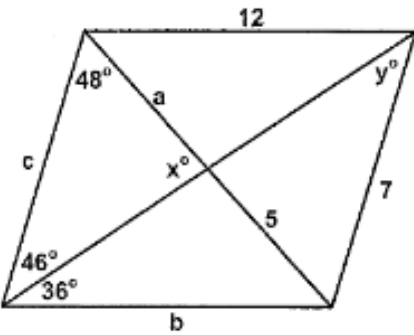
b) Find $m < 1$.



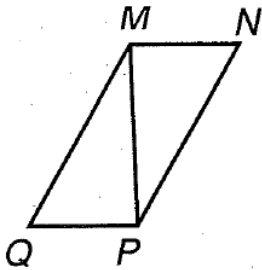
Geometry:

Justify:

c) Find all variables.



6. Find x so that the quadrilateral is a parallelogram. Then find the side length of MP , QP , and MN .



Geometry:

Justify:

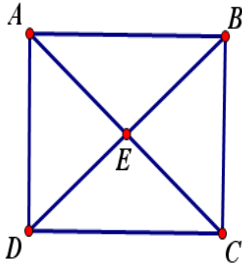
$$MP = 9x + 6$$

$$QP = 4x$$

$$MN = 5x - 6$$

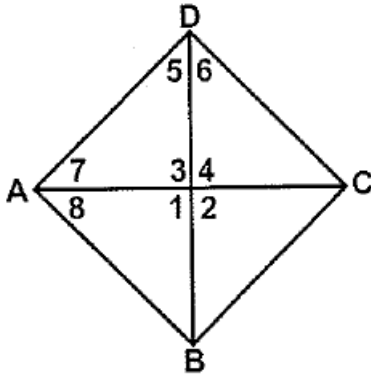
$x =$ _____ $MP =$ _____ $QP =$ _____ $MN =$ _____

7. ABCD is a square. If $AC = 16$ and $BD = 2x + 4$, find x .
 Geometry: _____ Justify: _____



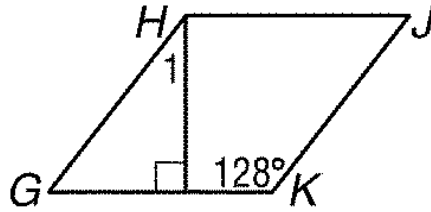
8. Rhombus Practice:

- a.) For rhombus ABCD, $m\angle 8 = 35$, find the $m\angle 1, m\angle 2, m\angle 3, m\angle 4, m\angle 5, m\angle 6,$ and $m\angle 7$.

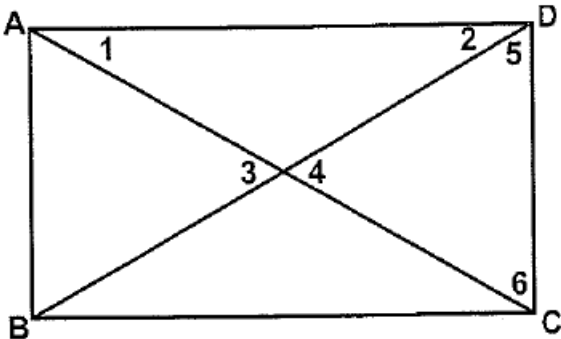


- $m\angle 1 =$ _____ Because: _____
 $m\angle 2 =$ _____ Because: _____
 $m\angle 3 =$ _____ Because: _____
 $m\angle 4 =$ _____ Because: _____
 $m\angle 5 =$ _____ Because: _____
 $m\angle 6 =$ _____ Because: _____
 $m\angle 7 =$ _____ Because: _____

- b.) For rhombus GHJK, find $m\angle 1$

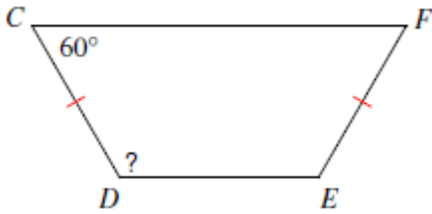


9. ABCD is a rectangle. If $m\angle 1 = 20$, find the $m\angle 2, m\angle 3, m\angle 4, m\angle 5,$ and $m\angle 6$.



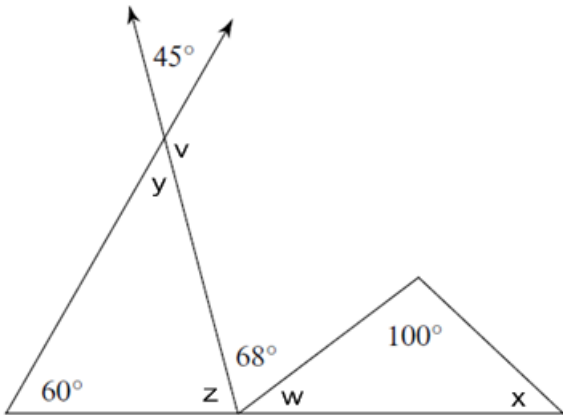
- $m\angle 2 =$ _____ Because: _____
 $m\angle 3 =$ _____ Because: _____
 $m\angle 4 =$ _____ Because: _____
 $m\angle 5 =$ _____ Because: _____
 $m\angle 6 =$ _____ Because: _____

10. For isosceles trapezoid $CDEF$, find $m\angle F$, $m\angle E$, $m\angle D$, and EF .



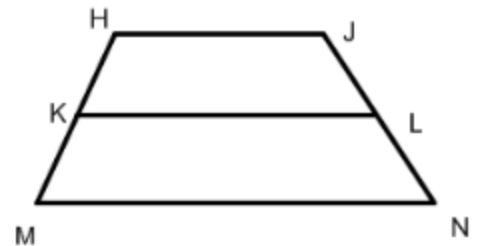
$m\angle F = \underline{\hspace{2cm}}$ because $\underline{\hspace{2cm}}$
 $m\angle D = \underline{\hspace{2cm}}$ because $\underline{\hspace{2cm}}$
 $m\angle E = \underline{\hspace{2cm}}$ because $\underline{\hspace{2cm}}$
 $EF = \underline{\hspace{2cm}}$ because $\underline{\hspace{2cm}}$

11. Find all of the missing angles.

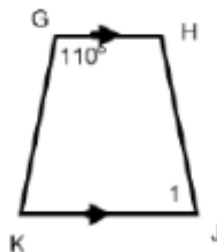


$v = \underline{\hspace{2cm}}$ $w = \underline{\hspace{2cm}}$ $x = \underline{\hspace{2cm}}$ $y = \underline{\hspace{2cm}}$ $z = \underline{\hspace{2cm}}$

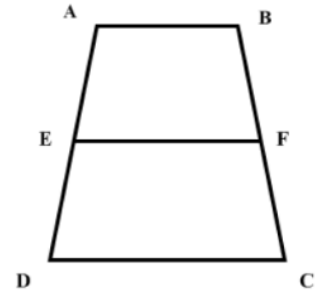
12. LK is the **midsegment** of trapezoid $HJNM$. Find MN if $HJ = 5$ and $LK = 25$.



13. For isosceles trapezoid $GHJK$, find $\angle 1$.



14. Given isosceles trapezoid ABCD, EF is the **midsegment**. Find EF, AD, and $m\angle AEF$ if $AB=10$, $CD = 20$, $AE = y + 5$, $FC = 2y - 10$, and $m\angle EFC = 130$

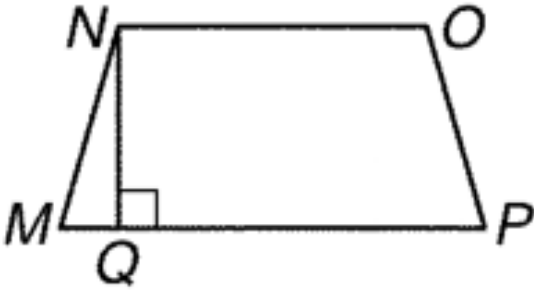


EF = _____

AD = _____

$m\angle AEF =$ _____

15. For isosceles trapezoid $MNOP$, find $m\angle M$, $m\angle O$, $m\angle QNO$ and $m\angle MNQ$ if $\angle P = 65^\circ$.



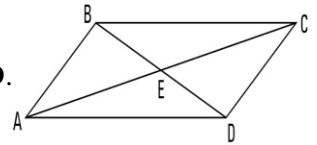
$m\angle M =$ _____ because _____

$m\angle O =$ _____ because _____

$m\angle QNO =$ _____ because _____

$m\angle MNO =$ _____ because _____

16. Write geometric statement along with the correct justification for parallelogram ABCD.



a.) $AB \cong$ _____ because : _____

b.) $\angle ABC \cong$ _____ because : _____

c.) $EA \cong$ _____ because : _____

d.) $BC \parallel$ _____ because : _____

e.) $\angle BAD \cong$ _____ because : _____

f.) $\angle BEA \cong$ _____ because : _____

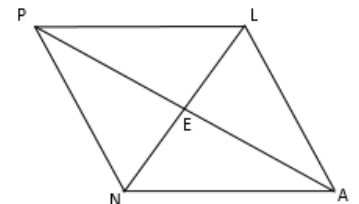
g.) $\angle BCA \cong$ _____ because : _____

h.) $\angle BCD + \angle$ _____ $= 180$ because : _____

17. Use rhombus PLAN to write the correct geometric statement (if needed) and justification.

a.) $AL \cong PL$ because : _____

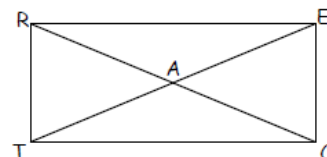
b.) $\angle NEA = 90$ because : _____



- c.) $EA \cong$ _____ because : _____
- d.) $NA \parallel$ _____ because : _____
- e.) $\angle NPE \cong$ _____ because : _____
- f.) $\angle PLA \cong$ _____ because : _____
- g.) $\angle LNA \cong$ _____ because : _____
- h.) $\angle LEA = 90$ because : _____

18. Use rectangle **RECT** to write the correct geometric statement (if needed) and justification.

- a.) $RC \cong TE$ because : _____
- b.) $\angle TCE = 90$ because : _____
- c.) $EA \cong$ _____ because : _____
- d.) $RE \parallel$ _____ because : _____
- e.) $\angle TRA \cong \angle RTA$ because : _____
- f.) $\angle RAE \cong$ _____ because : _____
- g.) $\angle RTE \cong \angle TEC$ because : _____
- h.) $\angle TCR +$ _____ $= 90$ because : _____



19. ABCD is a quadrilateral with the following information. Determine if ABCD is a parallelogram, rhombus, rectangle and/or square.

Slope $AB = -1/5$ Slope $DC = -1/5$ Slope $DA = 3/2$ Slope $BC = 3/2$

$AB = \sqrt{26}$ $DC = \sqrt{26}$ $DA = \sqrt{13}$ $BC = \sqrt{13}$

ABCD _____ a parallelogram because _____

ABCD _____ a rhombus because _____

ABCD _____ a rectangle because _____

ABCD _____ a square because _____
(is or is not)

20. ABCD is a quadrilateral with the following information. Determine if ABCD is a parallelogram, rhombus, rectangle and/or square.

Slope AB = -3 Slope DC = -3 Slope DA = 1/3 Slope BC = 1/3

AB = $2\sqrt{10}$ DC = $2\sqrt{10}$ DA = $2\sqrt{10}$ BC = $2\sqrt{10}$

ABCD _____ a parallelogram because _____

ABCD _____ a rhombus because _____

ABCD _____ a rectangle because _____

ABCD _____ a square because _____

(is or is not)

21. ABCD is a quadrilateral with the following information. Determine if ABCD is a parallelogram, rhombus, rectangle and/or square.

Slope AB = 4/3 Slope DC = 4/3 Slope DA = undefined Slope BC = undefined

AB = 5 DC = 5 DA = 5 BC = 5

ABCD _____ a parallelogram because _____

ABCD _____ a rhombus because _____

ABCD _____ a rectangle because _____

ABCD _____ a square because _____
 (is or is not)

22. ABCD is a quadrilateral with the following information. Determine if ABCD is a parallelogram, rhombus, rectangle and/or square.

Slope AB = -2 Slope DC = -2 Slope DA = 1/2 Slope BC = 1/2

AB = $2\sqrt{13}$ DC = $2\sqrt{13}$ DA = $2\sqrt{5}$ BC = $2\sqrt{5}$

ABCD _____ a parallelogram because _____

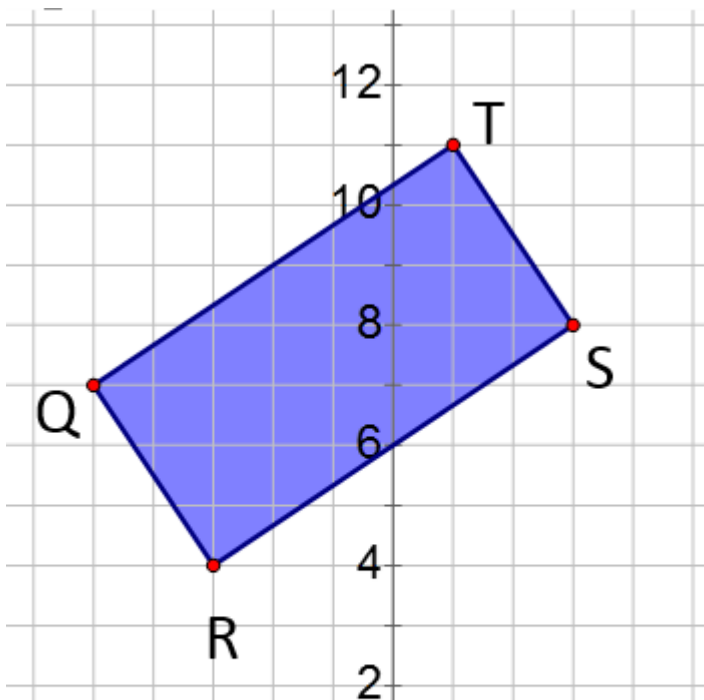
ABCD _____ a rhombus because _____

ABCD _____ a rectangle because _____

ABCD _____ a square because _____

(is or is not)

24. Classify $QRST$ with vertices $Q(-5,7)$, $R(-3,4)$, $S(3,8)$, and $T(1,11)$. SHOW ALL WORK!!!! Show all distances, all slopes, find the perimeter of the figure.



QRST _____ a parallelogram because _____

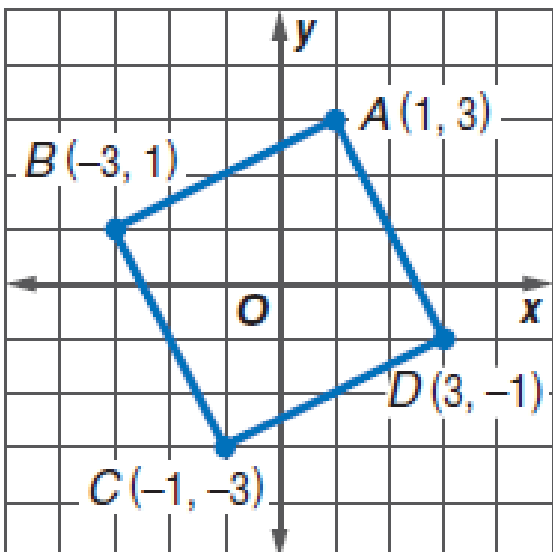
QRST _____ a rhombus because _____

QRST _____ a rectangle because _____

QRST _____ a square because _____

Perimeter = _____

25. Classify $ABCD$ SHOW ALL WORK!!!! Show all distances, all slopes, find the perimeter of the figure.



ABCD _____ a parallelogram because _____

ABCD _____ a rhombus because _____

ABCD _____ a rectangle because _____

ABCD _____ a square because _____

Perimeter = _____