

## Polygon Unit Test Review 2016 Schmidt

**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.

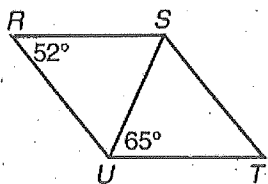
1. Find the sum of the measures of the interior angles of a convex 39-gon.

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

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  $m\angle RUS$ .



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

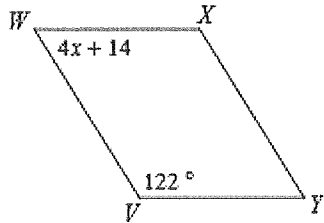
Geometry: \_\_\_\_\_ Justify: \_\_\_\_\_

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

Geometry: \_\_\_\_\_ Justify: \_\_\_\_\_

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

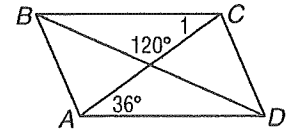
a.) Find  $x$ .



Geometry:

Justify:

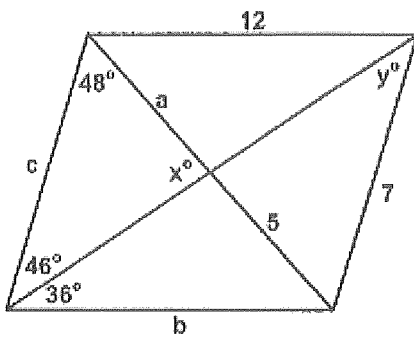
b) Find  $m < 1$ .



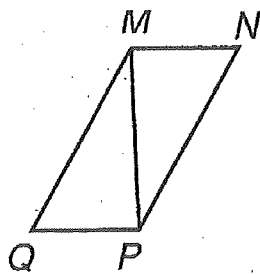
Geometry:

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:

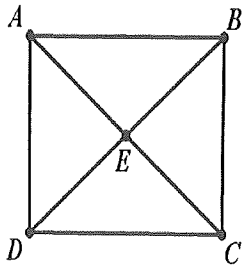
$$MP = 9x + 6$$

$$QP = 4x$$

$$MN = 5x - 6$$

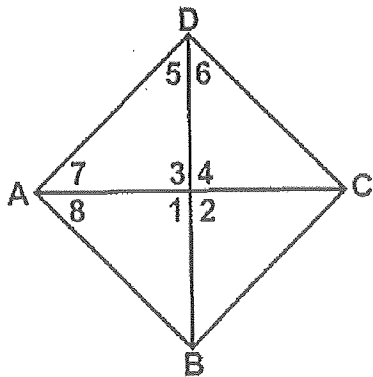
$$x = \underline{\hspace{2cm}} \quad MP = \underline{\hspace{2cm}} \quad QP = \underline{\hspace{2cm}} \quad MN = \underline{\hspace{2cm}}$$

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



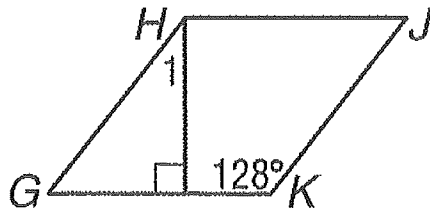
8. Rhombus Practice:

- 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  $m\angle 7$ .

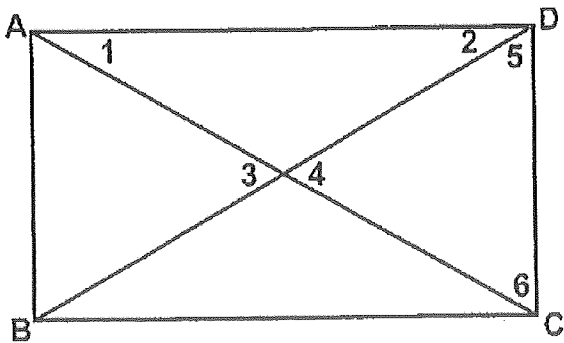


- $m\angle 1 =$  \_\_\_\_\_ Because: \_\_\_\_\_  
 $m\angle 2 =$  \_\_\_\_\_ Because: \_\_\_\_\_  
 $m\angle 3 =$  \_\_\_\_\_ Because: \_\_\_\_\_  
 $m\angle 4 =$  \_\_\_\_\_ Because: \_\_\_\_\_  
 $m\angle 5 =$  \_\_\_\_\_ Because: \_\_\_\_\_  
 $m\angle 6 =$  \_\_\_\_\_ Because: \_\_\_\_\_  
 $m\angle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

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

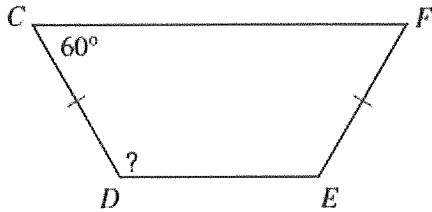


9. ABCD is a rectangle. If  $m\angle 1 = 20$ , find the  $m\angle 2$ ,  $m\angle 3$ ,  $m\angle 4$ ,  $m\angle 5$ , and  $m\angle 6$ .



- $m\angle 2 =$  \_\_\_\_\_ 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  $EF$ .



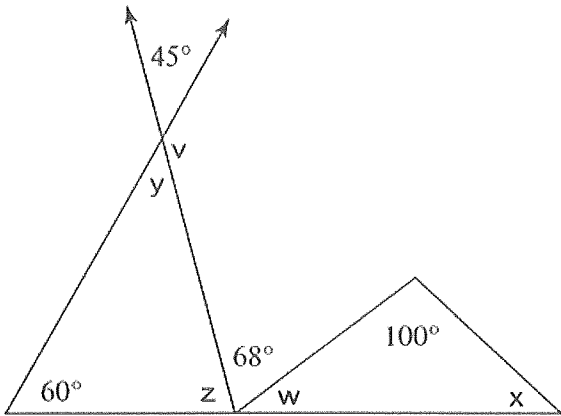
$m\angle F =$  \_\_\_\_\_ because \_\_\_\_\_

$m\angle D =$  \_\_\_\_\_ because \_\_\_\_\_

$m\angle E =$  \_\_\_\_\_ because \_\_\_\_\_

$EF =$  \_\_\_\_\_ because \_\_\_\_\_

11. Find all of the missing angles.



$v =$  \_\_\_\_\_

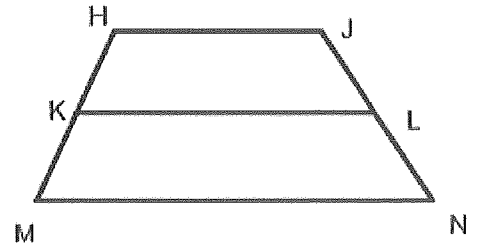
$w =$  \_\_\_\_\_

$x =$  \_\_\_\_\_

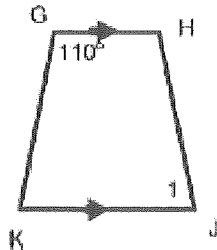
$y =$  \_\_\_\_\_

$z =$  \_\_\_\_\_

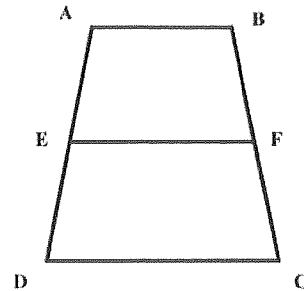
12.  $LK$  is the midsegment of trapezoid  $HJNM$ . Find  $MN$  if  $HJ = 5$  and  $LK = 25$ .



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  $m\angle EFC = 130$

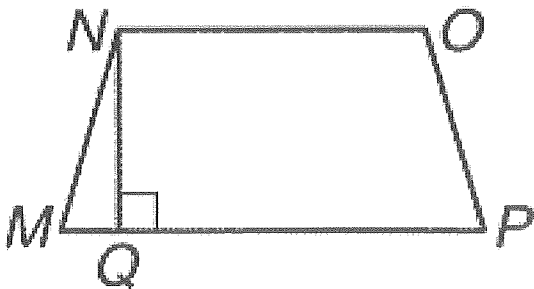


EF = \_\_\_\_\_

AD = \_\_\_\_\_

$m\angle AEF =$  \_\_\_\_\_

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



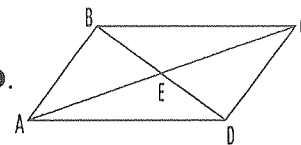
$m\angle M =$  \_\_\_\_\_ because \_\_\_\_\_

$m\angle O =$  \_\_\_\_\_ 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 : \_\_\_\_\_

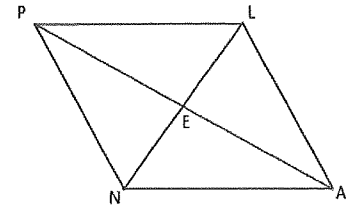
f.)  $\angle BEA \cong$  \_\_\_\_\_ because : \_\_\_\_\_

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

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

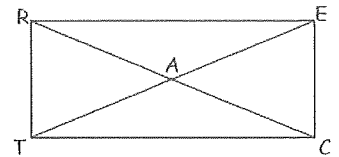
17. Use rhombus PLAN to write the correct geometric statement (if needed) and justification.

- 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 =  $\frac{4}{3}$       Slope DC =  $\frac{4}{3}$       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 =  $\frac{1}{2}$       Slope BC =  $\frac{1}{2}$

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

ABCD \_\_\_\_\_ a parallelogram because \_\_\_\_\_

ABCD \_\_\_\_\_ a rhombus because \_\_\_\_\_

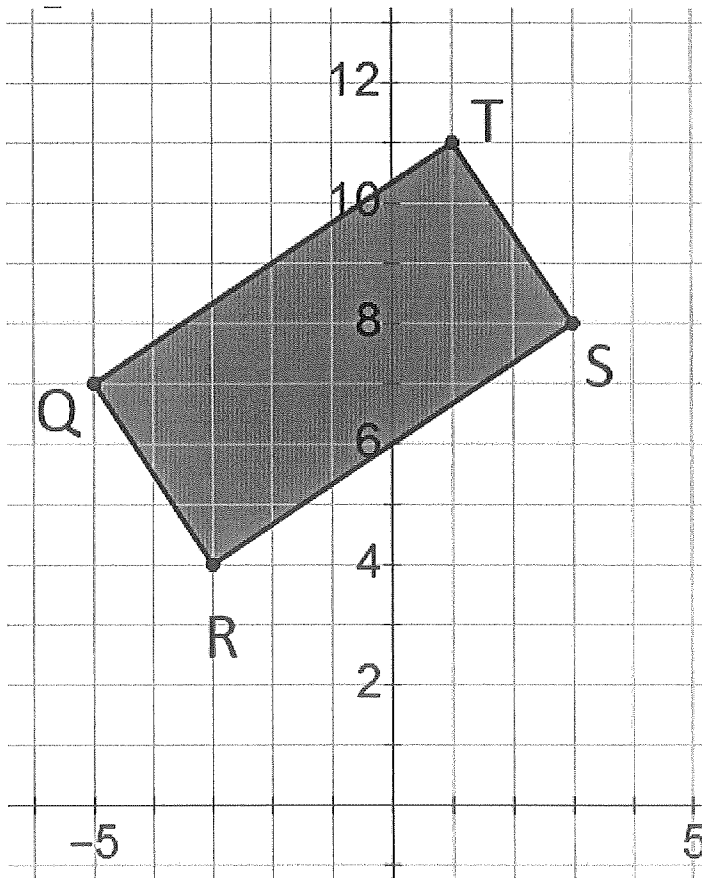
ABCD \_\_\_\_\_ a rectangle because \_\_\_\_\_

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 \_\_\_\_\_

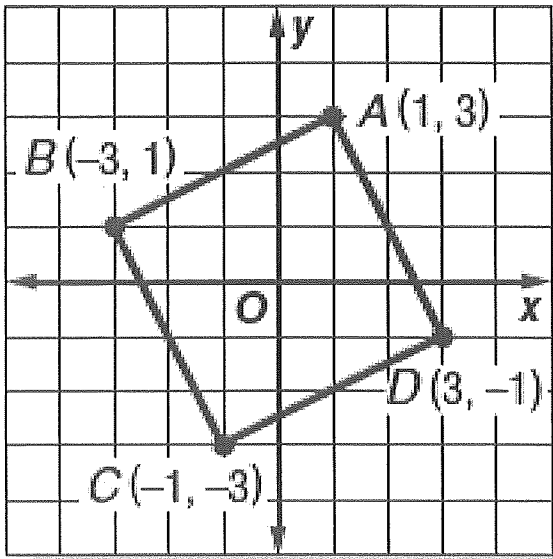
$QRST$  \_\_\_\_\_ a rhombus because \_\_\_\_\_

$QRST$  \_\_\_\_\_ 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 = \_\_\_\_\_