


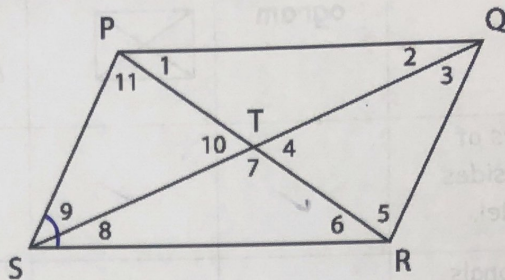
Geometry - Unit 7 Review

Using the grid, identify which quadrilaterals satisfy the following properties:

Property	Paraaellogram	Rectangle	Rhombus	Square	Trapezoid	Kite
						
Both pairs of opposite sides are parallel.	✓	✓	✓	✓		
The diagonals bisect each other.	✓	✓	✓	✓		
Opposite angles are congruent.	✓	✓	✓	✓		
Only one pair of parallel sides.					✓	
Two pair of adjacent congruent sides.						✓
The diagonals are perpendicular			✓	✓		
Opposite sides are congruent.	✓	✓	✓	✓		
All four sides are congruent.			✓	✓		
All four angles are right angles.		✓		✓		
Each diagonal bisects a pair of opposite angles.			✓	✓		
The diagonals are congruent.		✓		✓		
Consecutive angles are supplementary.	✓	✓	✓	✓		

For the following problems, use the associated figure to answer questions about each quadrilateral.

$PQRS$ is a parallelogram. Find the unknown measure(s).



6. If $m\angle 2 = 25^\circ$ and $m\angle 9 = 48^\circ$, then $m\angle SPQ = \underline{107^\circ}$
 $m\angle 2 = m\angle 8$ because alt. interior angles
 so $m\angle 9 + m\angle 2 = m\angle 9 + m\angle 8 = 73^\circ$

SPQ & PSR are adjacent, so they add up to 180.
 so $m\angle SPQ = 180 - 73$

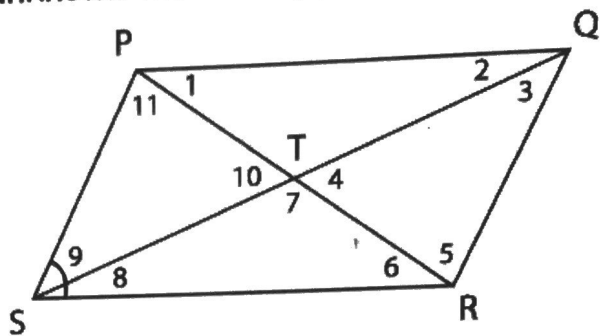
7. If $PQ = 7x - 3$ and $SR = 5x + 5$, then $PQ = \underline{25}$
 $7x - 3 = 5x + 5$ $PQ = 7(4) - 3$
 $2x = 8$
 $x = 4$

8. If $ST = 8$, then $SQ = \underline{16}$
 $ST = 8$ and $TQ = 8$ so $SQ = 16$

9. If $m\angle PSR = 75^\circ$, then $m\angle PQR = \underline{75^\circ}$, $m\angle QRS = \underline{105^\circ}$

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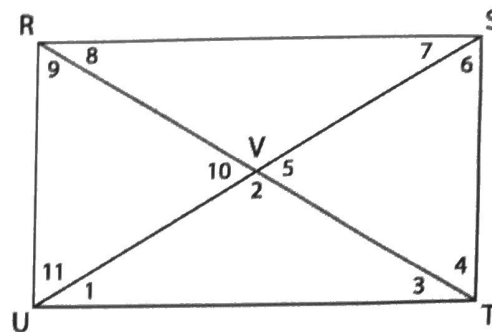
SPQ & PSR are adjacent, so they add up to 180.
 so $m\angle SPQ = 180 - 73$

7. If $PQ = 7x - 3$ and $SR = 5x + 5$, then $PQ = \underline{25}$
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RSTU is a rectangle. Find the unknown measure(s).



10. If $m\angle 1 = 9x - 3$ and $m\angle 3 = 7x + 5$, then $m\angle 3 = \underline{33^\circ}$

$$9x - 3 = 7x + 5 \quad m\angle 3 = 7(4) + 5$$

$$2x = 8 \quad x = 4$$

diagonals are \cong so they form isosceles Δ s, so base \angle 's are \cong .

11. If $RV = 4x + 1$ and $RT = 10x - 2$, then $RT = \underline{18}$

if $RV = 4x + 1$ then $VT = 4x + 1$
part + part = whole

$$4x + 1 + 4x + 1 = 10x - 2$$

$$8x + 2 = 10x - 2$$

$$4 = 2x$$

$$2 = x$$

$$RT = 10(2) - 2$$

$$= 20 - 2$$

$$= 18$$

12. If $m\angle 11 = 11x + 4$ and $m\angle 7 = 6x + 1$, then $m\angle 7 = \underline{31^\circ}$

$m\angle 7 = m\angle 11$ (alt. interior angles)

$m\angle 11 + m\angle 1 = 90^\circ$ because rectangle so

$$m\angle 7 = 6(5) + 1 = 30 + 1 = 31$$

$$11x + 4 + 6x + 1 = 90$$

$$17x + 5 = 90$$

$$17x = 85$$

$$x = 5$$

13. If $m\angle 4 = 54^\circ$, then $m\angle 5 = \underline{72^\circ}$ and $m\angle 2 = \underline{108^\circ}$

$$m\angle 3 = 90 - 54$$

$$= 36^\circ \quad \text{so } m\angle 1 = 36^\circ$$

$$m\angle 1 + m\angle 2 + m\angle 3 = 180$$

$$36 + x + 36 = 180$$

$$m\angle 2 = 108$$

angles 2 & 5 make a linear pair so $180 - 109$ equals $\angle 5$.

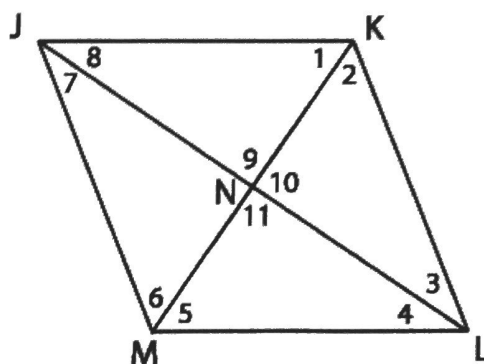
JKLM is a rhombus. Find the unknown measure(s).

14. If $MN = 6x - 5$ and $NK = 4x + 1$,

then $MK = \underline{26}$

$$6x - 5 = 4x + 1 \quad x = 3$$

$$2x = 6 \quad 13 + 13 = 26$$



15. If $m\angle 10 = 7x - 8$, then $x = \underline{14}$

$$7x - 8 = 90$$

$$7x = 98$$

16. If $m\angle 6 = 52^\circ$, then $m\angle JKL = \underline{104^\circ}$

$$m\angle 6 = m\angle 5$$

$$m\angle JML = 52 + 52 = 104$$

$m\angle JKL = m\angle JML$ (opp. angles)

17. If $KL = 13$, then $ML = \underline{13}$, $JM = \underline{13}$, $JK = \underline{13}$

ABCD is a square. Find the unknown measure(s).

$$5x + 1 = 8x + 11$$

$$12 = 3x$$

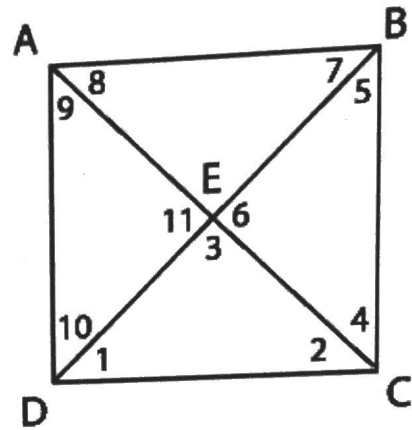
$$4 = x$$

18. If $AB = 5x + 1$ and $BC = 8x - 11$, then

$$AB = \underline{21}, BC = \underline{21}, CD = \underline{21}, AD = \underline{21}$$

$$= 5(4) + 1$$

$$= 21$$



19. If $m\angle 3 = 8x + 2$, then $x = \underline{11}$

$$8x + 2 = 90$$

$$8x = 88$$

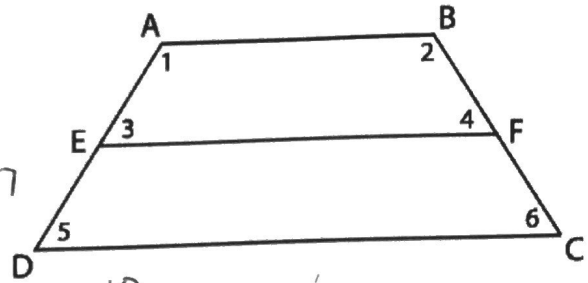
20. If $AE = 19$, then $DB = \underline{38}$

21. $m\angle 1 = \underline{45^\circ}$

$ABCD$ is an isosceles trapezoid with median EF . Find the unknown measure(s).

22. If $AB = 11$ and $DC = 23$,
then $EF = \underline{17}$

$$\text{median} = \frac{\text{base} + \text{base}}{2} = \frac{11 + 23}{2} = \frac{34}{2} = 17$$



23. If $AD = 3x - 2$ and $BC = x + 6$, then $AD = \underline{10}$

$$\begin{aligned} 3x - 2 &= x + 6 && 3(4) - 2 \\ 2x &= 8 && \\ x &= 4 && \end{aligned}$$

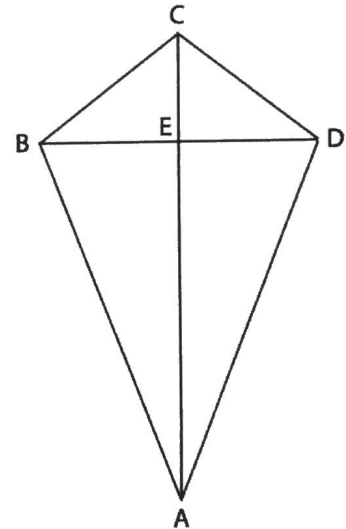
24. If $AE = 7$, then $ED = \underline{7}$

25. If $m\angle 6 = 43^\circ$, then $m\angle 4 = \underline{43^\circ}$, $m\angle 5 = \underline{43^\circ}$ and $m\angle 2 = \underline{137^\circ}$
corresponding angles $= \frac{360 - 43 - 43}{2} = 137^\circ$

$ABCD$ is a kite. Find the unknown measure.

26. If $AB = 8x - 2$, and $AD = 6x + 4$, then $AD = \underline{22}$

$$\begin{aligned} 8x - 2 &= 6x + 4 && 6(3) + 4 \\ 2x &= 6 && \\ x &= 3 && \end{aligned}$$



27. If $m\angle CED = 7x + 6$, then $x = \underline{12}$

$$\begin{aligned} 7x + 6 &= 90 \\ 7x &= 84 \\ x &= 12 \end{aligned}$$

28. If $m\angle ABC = 12x + 10$ and $m\angle ADC = 15x - 14$, then $m\angle ADC = \underline{106^\circ}$

$$\begin{aligned} 12x + 10 &= 15x - 14 && ADC = 15(8) - 14 \\ 24 &= 3x && = 106^\circ \\ 8 &= x && \end{aligned}$$

29. If $m\angle BAC = 24^\circ$, then $m\angle DAC = \underline{24^\circ}$