

Name: _____

Hour: _____

Rhombi Focus Practice

Directions: Show all work and justify your work. Failure to do so will result in a zero.

1. Use rhombus $DKLM$ with $AM = 4x$, $AK = 5x - 3$, and $DL = 10\text{cm}$.

Find x , DL , AM , and use Pythagorean Theorem to find DM .

Find x .

Geometry:

$$AM = AK$$

$$4x = 5x - 3$$

$$\boxed{x = 3}$$

Find DL . AL

Geometry:

$$AL = \frac{1}{2} DL$$

$$\boxed{AL = 5\text{cm}}$$

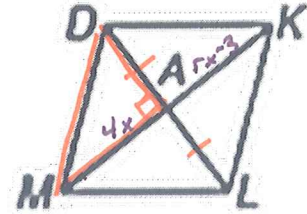
Find AM .

Geometry:

$$AM = 4(3)$$

$$\boxed{AM = 12\text{cm}}$$

Justification:
diags of a Rhombus bisect each other.



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Justification:

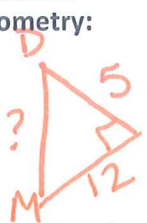
Substitution

Find \angle
Geometry
 $\angle = 90^\circ$

Just.
diags of a Rhombus are \perp

Find DM .

Geometry:



$$5^2 + 12^2 = x^2$$

$$169 = x^2$$

$$\boxed{13\text{cm} = DM}$$

Justification:

Pyth. thm.

2. Use rhombus $RSTV$ with $RS = 5y + 2$, $ST = 3y + 6$, $NV = 6$, $\angle STN = 30^\circ$ and $\angle RVT = 120^\circ$.

Find y , TV , $m\angle NTV$, $\angle SVT$, $\angle RST$, and $\angle SRV$.

Find y .

Geometry:

$$RS = ST$$

$$5y + 2 = 3y + 6$$

$$\boxed{y = 2}$$

Justification:

def of a Rhombus
4 sides are \cong

Find TV .

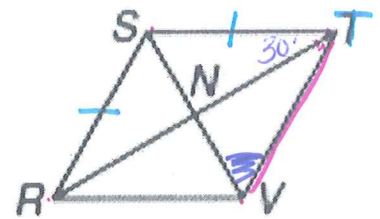
Geometry:

$$TV = 5(2) + 2$$

$$\boxed{TV = 12}$$

Justification:

def of rhombus
4 sides are \cong



Find $\angle NTV$.

Geometry:

$$\angle NTV = \angle STN$$

$$\boxed{\angle NTV = 30^\circ}$$

Justification:

Diags of a Rhombus bisect the angles.

Find $\angle SVT$.

Geometry:

$$\angle SVT = \frac{1}{2} \angle RVT$$

$$\boxed{\angle SVT = 60^\circ}$$

Justification:

diags of a Rhombus bisect the \angle s

Find $\angle RST$.

Geometry:

$$\angle RST \cong \angle RVT$$

$$\boxed{\angle RST = 120^\circ}$$

Justification:

op. \angle s of a Rhombus are \cong

Find $\angle SRV$.

Geometry:

$$\angle SRV = \angle STV$$

$$\boxed{\angle SRV = 60^\circ}$$

Justification:

op. \angle s of a Rhombus Parallelogram are \cong

3. Use rhombus PRYZ with $RK = 4y + 1$, $ZK = 7y - 14$, $PK = 3x - 1$, and $YK = 2x + 6$.

Find x , y , PY , RZ , RY and $\angle YKZ$.

Find x .

Geometry:

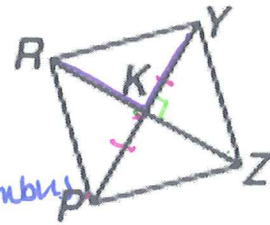
$$PK = YK$$

$$3x - 1 = 2x + 6$$

$$\boxed{x = 7}$$

Justification:

diags of a Rhombus
bisect each other



Find y .

Geometry:

$$RK = ZK$$

$$4y + 1 = 7y - 14$$

$$\boxed{5 = y}$$

Justification: diags of a Rhombus
bisect each other.

Find PY .

Geometry:

$$PY = PK + KY$$

Seg. addition

$$PY = 3(7) - 1 + 2(7) + 6$$

$$\boxed{PY = 40}$$

Justification:

Find RZ .

Geometry:

$$RZ = RK + ZK$$

$$RZ = 4(5) + 1 + 7(5) - 14$$

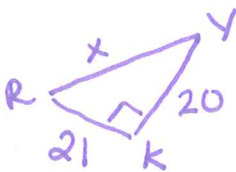
$$\boxed{RZ = 42}$$

Justification:

Segment
Addition

Find RY .

Geometry:



Justification:

Pyth. thm

$$21^2 + 20^2 = x^2$$

$$841 = RY^2$$

$$\boxed{29 = RY}$$

Find $\angle YKZ$.

Geometry:

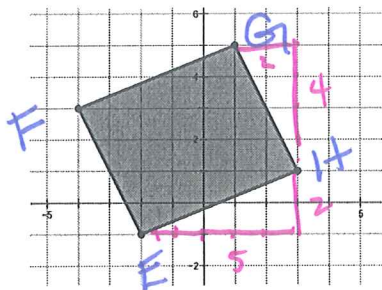
$$\angle YKZ = 90^\circ$$

Justification:

diags of
a Rhombus
are \perp

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4. Determine whether the figure with vertices $E(-2,-1)$, $F(-4,3)$, $G(1,5)$, $H(3,1)$ is a rhombus.



$$FG^2 = 2^2 + 5^2$$

$$\boxed{FG = \sqrt{29}}$$

$$EH^2 = 5^2 + 2^2$$

$$\boxed{EH = \sqrt{29}}$$

$$GH^2 = 2^2 + 4^2$$

$$\boxed{GH = \sqrt{20} = 2\sqrt{5}}$$

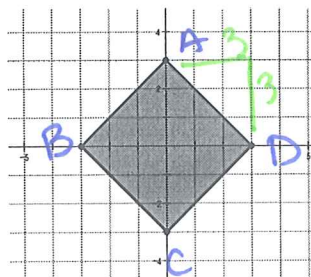
$$FE^2 = 4^2 + 2^2$$

$$\boxed{FE = 2\sqrt{5}}$$

Conclusion

Not a Rhombus
because
all sides are not
 \cong .

5. Determine whether the figure with vertices $A(0,3)$, $B(-3,0)$, $C(0,-3)$, and $D(3,0)$ is a rhombus.



$$AB^2 = 3^2 + 3^2 = \sqrt{18} = 3\sqrt{2}$$

$$CD^2 = 3^2 + 3^2 = 3\sqrt{2}$$

$$BC^2 = 3^2 + 3^2 = 3\sqrt{2}$$

$$AD^2 = 3^2 + 3^2 = 3\sqrt{2}$$

Conclusion

Rhombus because
all sides are \cong

Name: _____

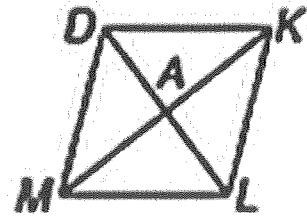
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Find x , AL , AM , $\angle MAD$, and use Pythagorean Theorem to find DM .



Find x .

Geometry:

Justification:

Find AL .

Geometry:

Justification:

Find AM .

Geometry:

Justification:

Find $\angle MAD$.

Geometry:

Justification:

Find DM .

Geometry:

Justification:

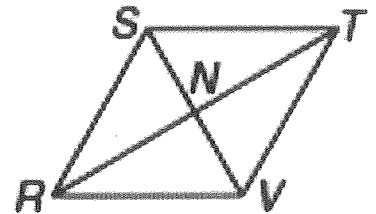
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Find y , TV , $m\angle NTV$, $\angle SVT$, $\angle RST$, and $\angle SRV$.

Find y .

Geometry:

Justification:



Find TV .

Geometry:

Justification:

Find $\angle NTV$.

Geometry:

Justification:

Find $\angle SVT$.

Geometry:

Justification:

Find $\angle RST$.

Geometry:

Justification:

Find $\angle SRV$.

Geometry:

Justification:

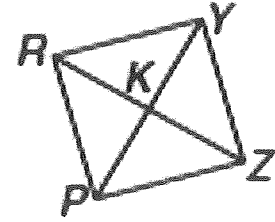
3. Use rhombus $PRYZ$ with $RK = 4y + 1$, $ZK = 7y - 14$, $PK = 3x - 1$, and $YK = 2x + 6$.

Find x , y , PY , RZ , RY and $\angle YKZ$.

Find x .

Geometry:

Justification:



Find y .

Geometry:

Justification:

Find PY .

Geometry:

Justification:

Find RZ .

Geometry:

Justification:

Find RY .

Geometry:

Justification:

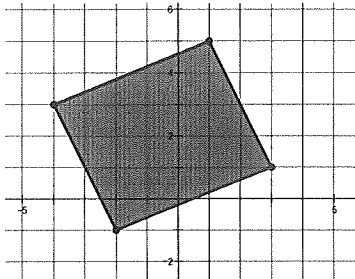
Find $\angle YKZ$.

Geometry:

Justification:

Show all work and follow all instructions. Failure to show work will result in a zero.

4. Determine whether the figure with vertices $E(-2,-1)$, $F(-4,3)$, $G(1,5)$, $H(3,1)$ is a rhombus.



5. Determine whether the figure with vertices $A(0,3)$, $B(-3,0)$, $C(0,-3)$, and $D(3,0)$ is a rhombus.

