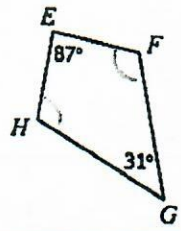
Name: _____ **Unit 7:** Polygons & Quadrilaterals

Date: _____ **Bell:** _____ **Homework 7:** Kites

**** This is a 2-page document! ****

Directions: If each quadrilateral below is a kite, find the missing measures.

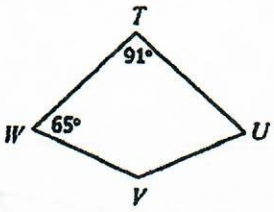
1.



$m\angle F =$ 121°

$m\angle H =$ 121°

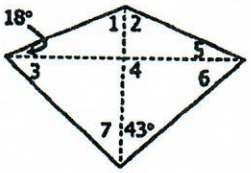
2.



$m\angle U =$ 65°

$m\angle V =$ 139°

3.



$m\angle 1 =$ 72°

$m\angle 2 =$ 72°

$m\angle 3 =$ 47°

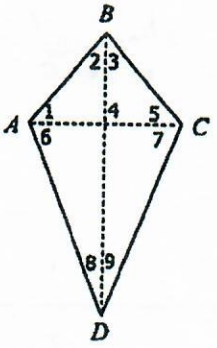
$m\angle 4 =$ 90°

$m\angle 5 =$ 18°

$m\angle 6 =$ 47°

$m\angle 7 =$ 43°

4. Given: $m\angle ABC = 70°$ and $m\angle ADC = 46°$.



$m\angle 1 =$ 55°

$m\angle 2 =$ 35°

$m\angle 3 =$ 35°

$m\angle 4 =$ 90°

$m\angle 5 =$ 55°

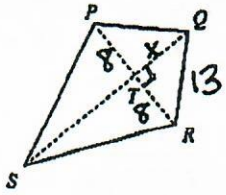
$m\angle 6 =$ 67°

$m\angle 7 =$ 67°

$m\angle 8 =$ 23°

$m\angle 9 =$ 23°

5. If $QR = 13$ and $PT = 8$, find QT.



$X^2 + 8^2 = 13^2$

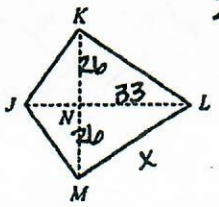
$X^2 + 64 = 169$

$X^2 = 105$

$X = 10.2$

$QT = 10.2$

6. If $KM = 52$ and $NL = 33$, find LM.



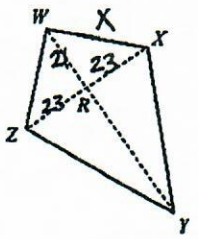
$26^2 + 33^2 = X^2$

$1765 = X^2$

$42 = X$

$LM = 42$

7. If $XZ = 46$ and $WR = 21$, find WX.



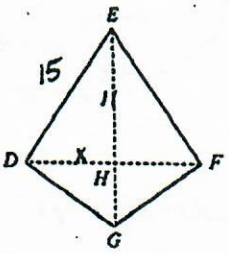
$21^2 + 23^2 = X^2$

$970 = X^2$

$31.1 = X$

$WX = 31.1$

8. If $DE = 15$ and $EH = 11$, find DF.



$X^2 + 11^2 = 15^2$

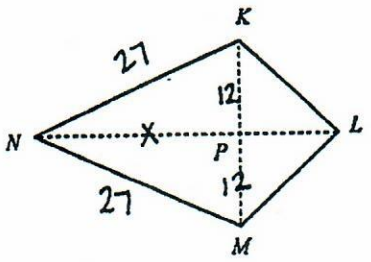
$X^2 + 121 = 225$

$X^2 = 104$

$X = 10.2$

$DF = 2(10.2) =$ 20.4

9. If $NK = 7x - 1$, $NM = 10x - 13$, and $KM = 24$, find NP.



$7x-1 = 10x-13$

$12 = 3x$

$4 = x$

$x^2+12^2 = 27^2$

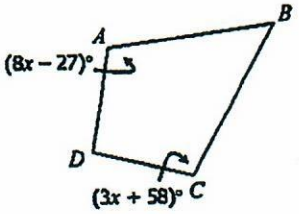
$x^2+144 = 729$

$x^2 = 585$

$x = 24.2$

$\boxed{NP = 24.2}$

10. Solve for x.

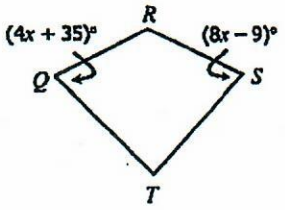


$8x-27 = 3x+58$

$5x = 85$

$\boxed{x = 17}$

11. Find $m\angle S$.



$8x-9 = 4x+35$

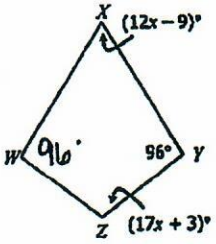
$4x = 44$

$x = 11$

$m\angle S = 8(11)-9$

$= 88-9 = \boxed{79°}$

12. Solve for x.



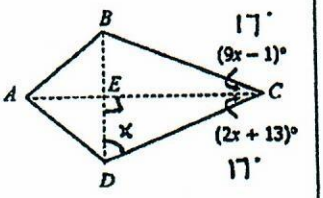
$360-2(96) = 168$

$29x-6 = 168$

$29x = 174$

$\boxed{x = 6}$

13. Find $m\angle EDC$.



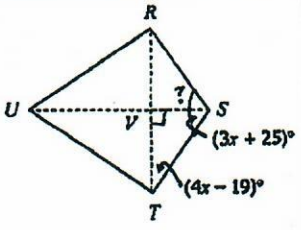
$9x-1 = 2x+13$

$7x = 14$

$x = 2$

$m\angle EDC = 90-17 = \boxed{73°}$

14. Find $m\angle RST$.



$7x+6 = 90$

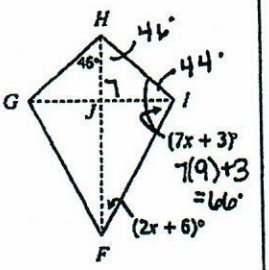
$7x = 84$

$x = 12$

$m\angle TSV = 3(12)+25 = 36+25 = 61°$

$m\angle RST = 2(61) = \boxed{122°}$

15. Find $m\angle HIF$.



$9x+9 = 90$

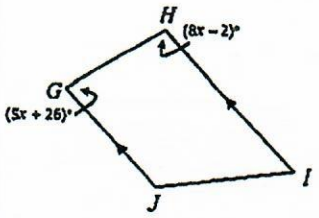
$9x = 81$

$x = 9$

$m\angle HIF = 44+66 = \boxed{110°}$

Trapezoids

33. Find $m\angle H$.



$13x + 24 = 180$

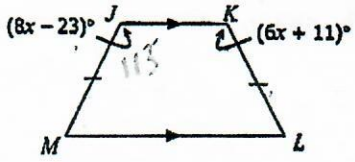
$13x = 156$

$x = 12$

$m\angle H = 8(12) - 2$

$= 94°$

34. Find $m\angle M$.



$8x - 23 = 6x + 11$

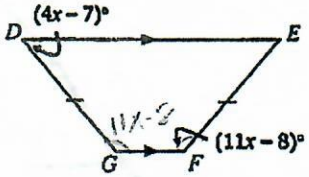
$2x = 34$

$x = 17$

$m\angle J = 8(17) - 23 = 113°$

$m\angle M = 67°$

35. Find $m\angle G$.



$4x - 7 + 11x - 8 = 180$

$15x = 195$

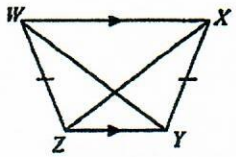
$x = 13$

$m\angle F = (13)11 - 8$

$= 135°$

$m\angle G = 135°$

36. If $WY = 15x - 2$ and $XZ = 9x + 10$, find WY.



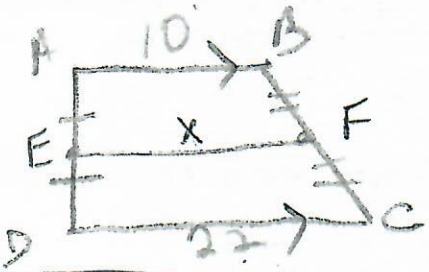
$15x - 2 = 9x + 10$

$6x = 12$

$x = 2$

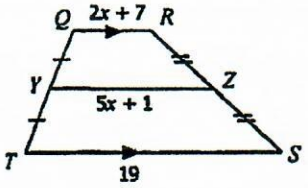
$WY = 15(2) - 2 = 28$

37



$x = \frac{10 + 22}{2} = \frac{32}{2} = 16$

38. Find YZ.



$5x + 1 = \frac{2x + 7 + 19}{2}$

$10x + 2 = 2x + 26$

$-2x \quad -2 \quad -2x \quad -2$

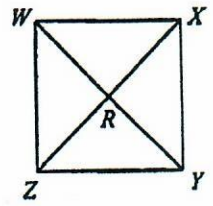
$8x = 24$

$8 \quad 8$

$x = 3$

$YZ = 5(3) + 1 = 16$

26. If $WXYZ$ is a square, find each angle.



$m\angle WXY =$ 90°
$m\angle XZY =$ 45°
$m\angle YXZ =$ 45°
$m\angle WRZ =$ 90°
$m\angle XWY =$ 45°

27. Using $WXYZ$ from the previous question, if $WY = 32$, find XY.

$16^2 + 16^2 = x^2$
$512 = x^2$
$22.6 = x$

$XY = 22.6$

Topic 7: Classifying Quadrilaterals in the Coordinate Plane

28. Determine the most precise classificiaton for quadrilateral $ABCD$ (parallelogram, rectangle, rhombus, or square) given $A(3, -4)$, $B(10, -2)$, $C(8, -9)$, $D(1, -11)$.

$AB = \sqrt{(3-10)^2 + (-4+2)^2} = \sqrt{49+4} = \sqrt{53}$
$CD = \sqrt{(8-1)^2 + (-9+11)^2} = \sqrt{49+4} = \sqrt{53}$
$BC = \sqrt{(10-8)^2 + (-2+9)^2} = \sqrt{4+49} = \sqrt{53}$
$AD = \sqrt{(3-1)^2 + (-4+11)^2} = \sqrt{4+49} = \sqrt{53}$

} Sq./ Rhm.

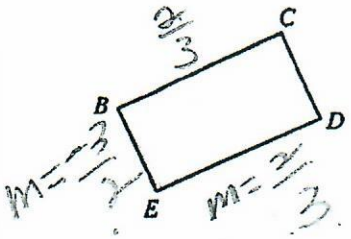
$AC = \sqrt{(3-8)^2 + (-4+9)^2} = \sqrt{25+25} = \sqrt{50}$
$BD = \sqrt{(10-1)^2 + (-2+11)^2} = \sqrt{81+81} = \sqrt{162}$

} Rhm.

Must use graph paper

$ABCD$ is a Rhombus.

Use quadrilateral $BCDE$ for questions 29 and 30.



29. If $B(-2, -5)$ and $C(4, -1)$, what must be the slope of $\overline{ED}$ in order for BCDE to be a parallelogram?

$m(\overline{BC}) = \frac{-1+5}{4+2} = \frac{4}{6} = \frac{2}{3}$

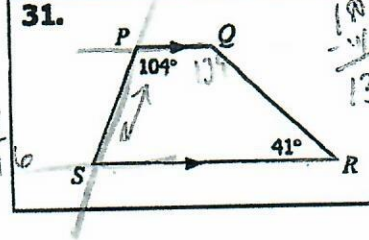
$m = 2/3$

30. Given the coordinates above, what must be the slope of $\overline{BE}$ in order for $BCDE$ to be a rectangle?

$m = -3/2$

Topic 8: Trapezoids

31.

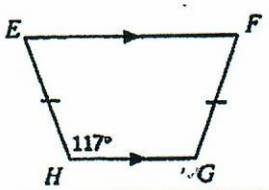


180 − 104 = 76

180 − 41 = 139

$m\angle Q =$ 139°
$m\angle S =$ 76°

32.



$m\angle E =$ 63°
$m\angle F =$ 63°
$m\angle G =$ 117°