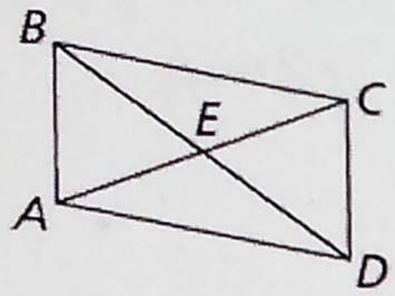
**Geometry**
**Ch 6 Group Review**

**Name** Key

**Group#** _____ **Per:** _____

1. Each of the parallel sides of a trapezoid is called a(n) BASE.

2. In //gram ABCD, $m\angle ABC = 79°$, BC = 62.4 and BD = 75. Find …




a. AD

AD = BC

$\boxed{AD = 62.4}$

b. $m\angle CDA$

$m\angle CDA = m\angle ABC$

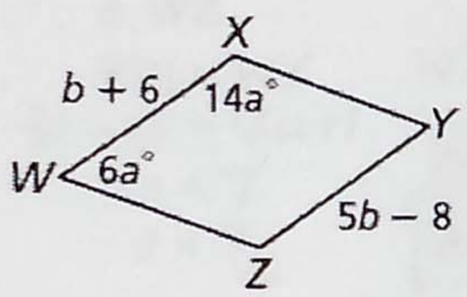
$\boxed{m\angle CDA = 79°}$

c. $m\angle DAB$

$m\angle DAB + 79° = 180°$

$\boxed{m\angle DAB = 101°}$

3. WXYZ is a //gram. Find…




a. YZ

$YZ = XW$

$5b - 8 = b + 6$

$4b = 14$

$b = \frac{14}{4} = 3.5$

$YZ = 5(3.5) - 8$

$\boxed{YZ = 9.5}$

b. $m\angle X$

$m\angle X + m\angle W = 180$

$14a + 6a = 180$

$20a = 180$

$a = 9$

$m\angle X = 14(9)$

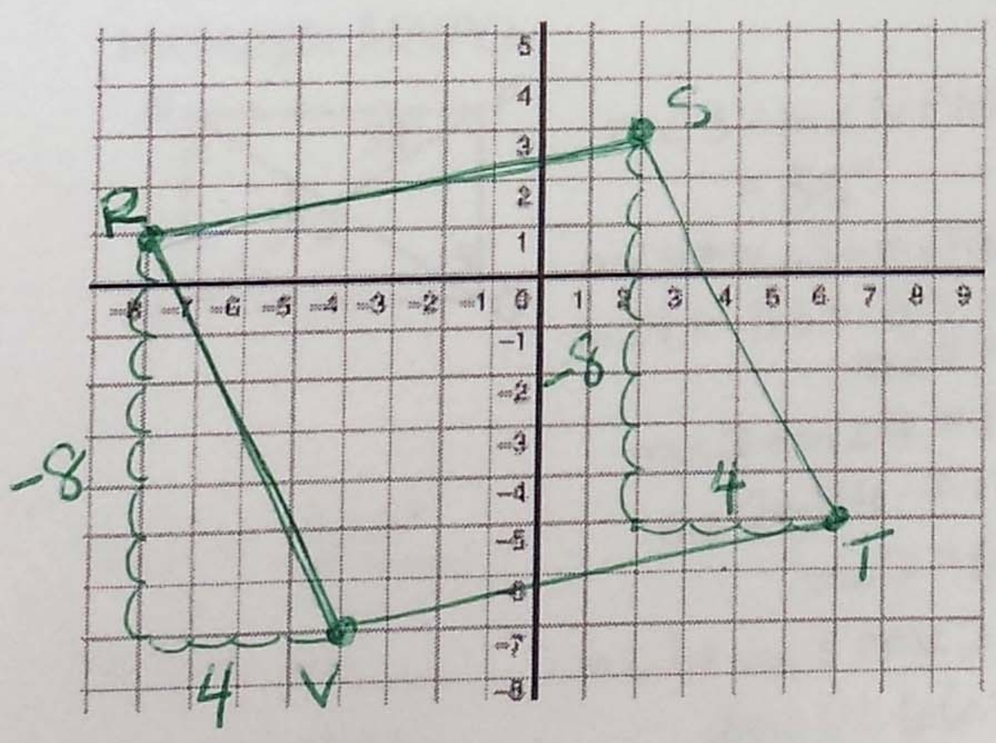
$\boxed{m\angle X = 126°}$

c. $m\angle Z$

$m\angle Z = m\angle X$

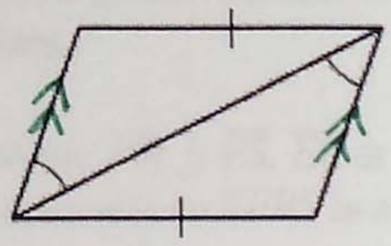
$\boxed{m\angle Z = 126°}$

4. Three vertices of //gram RSTV are R(-8, 1), S(2, 3), and V(-4, -7). Find the coordinates of vertex T.



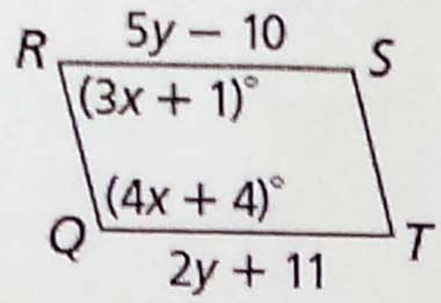

$\boxed{T(6, -5)}$

5. Determine if the quadrilateral is a //gram. Justify your answer.



NOT ENOUGH INFO

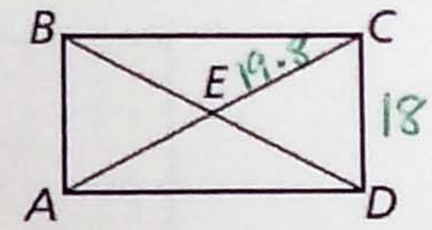
6. Show that the quadrilateral is a //gram for the given values of the variables. $x = 25, y = 7$




$3(25)+1 + 4(25)+4 = 180$
$76 + 104 = 180$
$180 = 180$ ✓

$5(7) + 10 = 2(7) + 11$
$25 = 25$ ✓

7. In rectangle ABCD, CD = 18 and CE = 19.8. Find...




a. AB

$AB = CD$
$\boxed{AB = 18}$

b. BD

$AC = 2(EC)$
$AC = 2(19.8)$
$AC = 39.6$

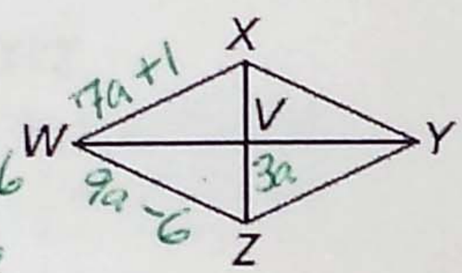
$AC = BD$
$\boxed{39.6 = BD}$

c. BC

$CD^2 + BC^2 = BD^2$
$(18)^2 + BC^2 = (39.6)^2$
$324 + BC^2 = 1568.16$

$\boxed{BC \approx 35.27}$

8. In rhombus WXYZ, WX = (7a + 1), WZ = (9a – 6), And VZ = (3a). Find…




a. WZ

$WZ = WX$
$9a - 6 = 7a + 1$
$2a = 7$
$a = 7/2$

$WZ = 9(7/2) - 6$
$WZ = 31\frac{1}{2} - 6$
$\boxed{WZ = 25\frac{1}{2} \text{ OR } 25.5}$

b. XY

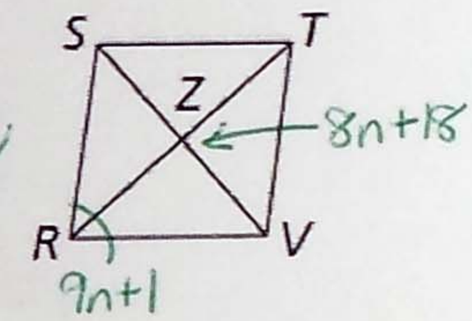
$XY = WZ$
$\boxed{XY = 25\frac{1}{2} \text{ OR } 25.5}$

c. XZ

$VZ = 3(7/2)$
$= 10\frac{1}{2}$

$XZ = 2(10\frac{1}{2})$
$\boxed{XZ = 21}$

9. In rhombus RSTV, $m\angle TZV = (8n + 18)°$, and $m\angle SRV = (9n + 1)°$. Find…




a. $m\angle STV$

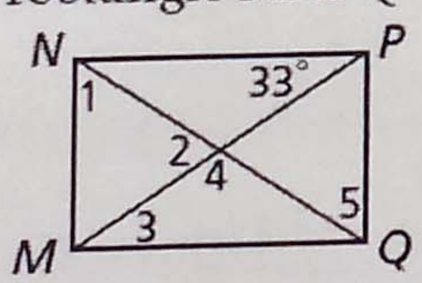
$8n + 18 = 90$
$8n = 72$
$n = 9$
$m\angle SRV = 9(9) + 1$
$= 82°$

$m\angle STV = m\angle SRV$
$\boxed{m\angle STV = 82°}$

b. $m\angle TRS$

$m\angle TRS = \frac{1}{2}(m\angle SRV)$
$m\angle TRS = \frac{1}{2}(82)$
$\boxed{m\angle TRS = 41°}$

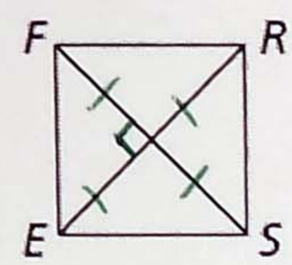
10. Find the measures of the numbered angles.
rectangle *MNPQ*




$m\angle 1 =$ 57°
$m\angle 2 =$ 66°
$m\angle 3 =$ 33°
$m\angle 4 =$ 114°
$m\angle 5 =$ 57°

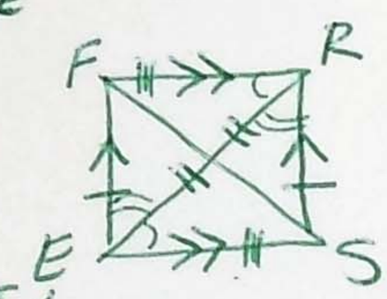
$m\angle 3 = m\angle NPM$
$= 33°$
$m\angle 4 + m\angle 3 + m\angle NQM = 180$
$m\angle 4 + 33 + 33 = 180$
$m\angle 4 = 114°$
$m\angle 2 + m\angle 4 = 180$
$m\angle 2 + 114 = 180$
$m\angle 2 = 66°$
$m\angle 1 + m\angle 1 + m\angle 2 = 180$
$2m\angle 1 + 66 = 180$
$2m\angle 1 = 114$
$m\angle 1 = 57°$
$m\angle 5 = m\angle 1$
$m\angle 5 = 57°$

11. Determine whether the conclusion is valid. Explain.




a. Given: $\overline{ER} \perp \overline{FS}$, $\overline{ER} \cong \overline{FS}$
Conclusion: *EFRS* is a square.

• DIAGONALS ⊥ → RHOMBUS
• DIAGONALS ≅ → RECTANGLE
→ EFRS IS A SQUARE

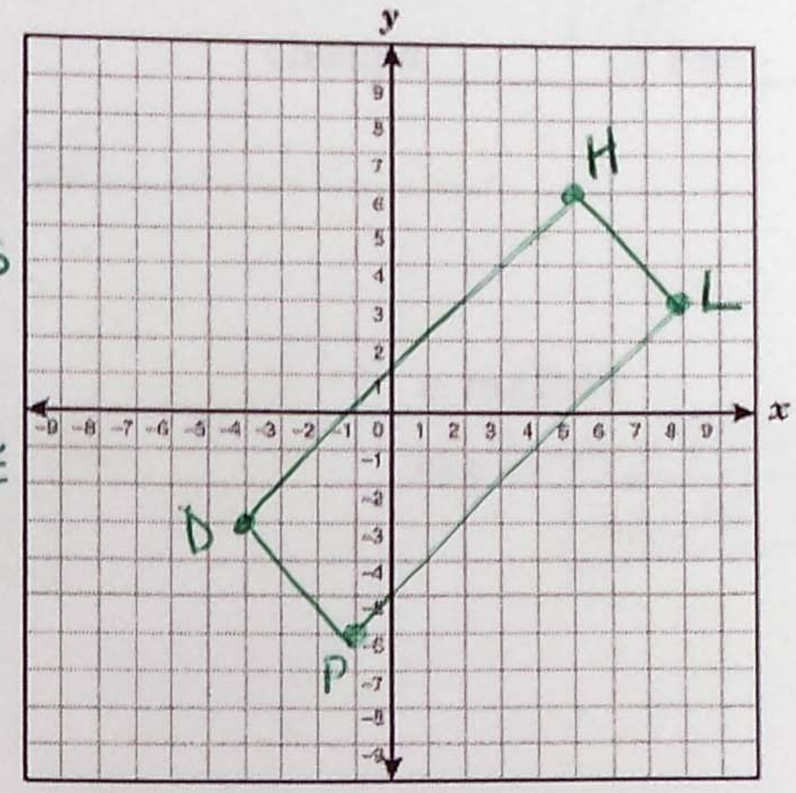



b. Given: $\overline{EF} \parallel \overline{RS}$, $\overline{FR} \parallel \overline{ES}$, $\overline{EF} \cong \overline{ES}$
Conclusion: *EFRS* is a rhombus.

∠SER ≅ ∠FRE ALT INT ∠
∠REF ≅ ∠ERS ALT INT ∠
△FER ≅ △SRE AAS
$\overline{FR} \cong \overline{SE}$ CPCTC
ALL SIDES ≅ ∴ RHOMBUS

12. Use the diagonals to tell whether the //gram is a rectangle, rhombus, or square. Give all names that apply.

D(-4, -3), H(5, 6), L(8, 3), P(-1, -6)




$mDL = \frac{y_2-y_1}{x_2-x_1} = \frac{3+3}{8+4} = \frac{6}{12} = \frac{1}{2}$

$mHP = \frac{y_2-y_1}{x_2-x_1} = \frac{-6-6}{-1-5} = \frac{-12}{-6} = 2$

NOT ⊥, NOT A RHOMBUS

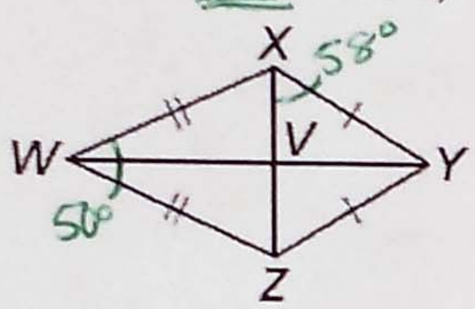
$\overline{DL} = \sqrt{(3+3)^2+(8+4)^2} = \sqrt{36+144} = \sqrt{180} = 6\sqrt{5}$

$\overline{HP} = \sqrt{(-6-6)^2+(-1-5)^2} = \sqrt{144+36} = \sqrt{180} = 6\sqrt{5}$

$\cong$

DHLP IS A RECTANGLE

13. In kite WXYZ, $m\angle VXY = 58°$, and $m\angle ZWX = 50°$. Find…




a. $m\angle XYZ$

$58+58+m\angle XYZ=180$

$\boxed{m\angle XYZ=64°}$

b. $m\angle VZW$

$50+m\angle WXZ+m\angle VZW=180$

$m\angle WXZ+m\angle VZW=130$

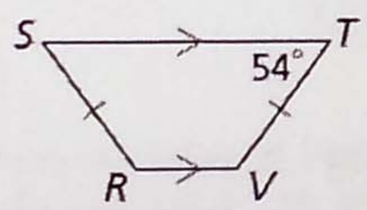
$m\angle WXZ = m\angle VZW$

$2m\angle VZW=130$

$\boxed{m\angle VZW=65°}$

14. Find each measure.

a.




$m\angle R =$ 36°

$m\angle S =$ 54°

$m\angle S+m\angle R+m\angle V+m\angle T=180$

$54+2m\angle R+54=180$

$2m\angle R=72$

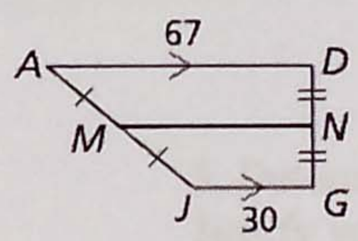
$m\angle R=36°$

$m\angle R=m\angle V$

$m\angle S=m\angle T$

$m\angle S=54°$

b.




MN = $48\frac{1}{2}$ OR 48.5

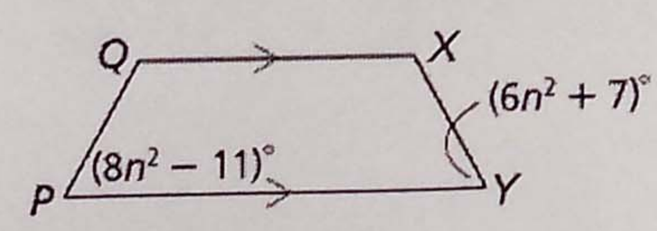
$MN=\frac{1}{2}(AD+JG)$

$MN=\frac{1}{2}(67+30)$

$MN=\frac{1}{2}(97)$

$MN=48\frac{1}{2}$ OR 48.5

15. Find the value of n so that PQXY is isosceles.




$\angle P=\angle Y$

$8n^2-11=6n^2+7$

$2n^2=18$

$n^2=9$

$\boxed{n=\pm 3}$