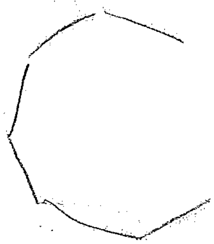
Geometry
8.1-8.4 Quiz Review

Name **Key** Per ___ A# ___

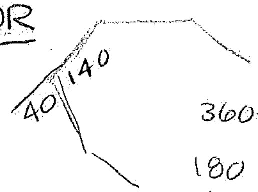
1. Find the measure of an interior angle for a regular nonagon.
9



9 sides
$- 2$
7 $\triangle$'s

180
$\times\ 7$
$1260 \div 9 = \boxed{140}$

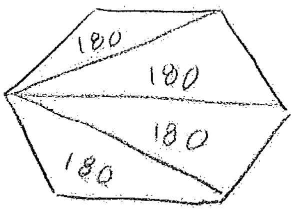
OR



$360 \div 9 = 40$

180
$- 40$
$\boxed{140}$

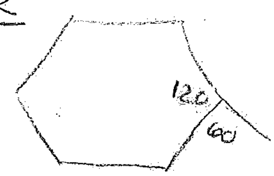
2. Find the measure of an interior angle for a regular hexagon.
6



6 sides
$- 2$
4 $\triangle$'s

180
$\times\ 4$
$720 \div 6 = \boxed{120}$

OR



$360 \div 6 = 60$

$180 - 60 = \boxed{120}$

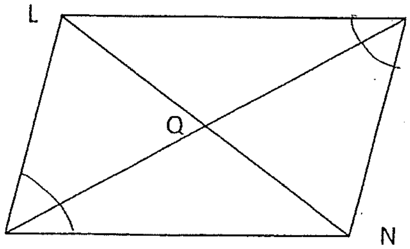
3. Find the measure of an exterior angle for a regular pentagon.
5

$360 \div 5 = \boxed{72}$

4. Find the measure of an exterior angle for a regular octagon.
8

$360 \div 8 = \boxed{45}$

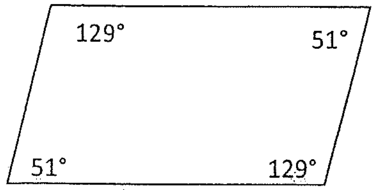
#5-7. Complete the statements about parallelogram LMNP.



OR

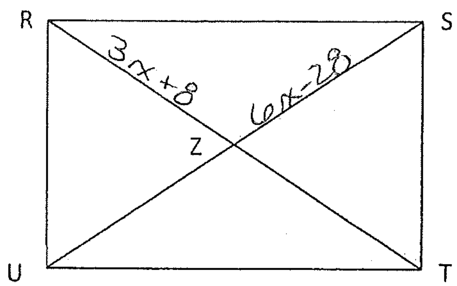
5. $\overline{LQ} \cong$ $\overline{QN}$ $\overline{NQ}$
6. $\angle LMN \cong$ $\angle NPL$ $\angle LPN$
7. $\overline{LM} \cong$ $\overline{PN}$ $\overline{NP}$

8. Determine whether the quadrilateral is a parallelogram. Justify your answer.



Yes, it is a parallelogram because both pairs of opposite angles are congruent.

9. Quadrilateral RSTU is a rectangle. If RZ = 3x + 8 and ZS = 6x – 28, find US.



$6x - 28 = 3x + 8$

$3x = 36$

$x = 12$

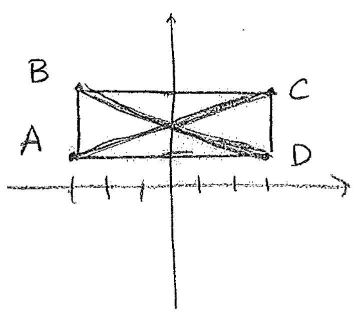
$6(12) - 28$

$72 - 28$

$44 \times 2 = \boxed{88 = US}$

10. Prove the diagonals of rectangle A(-3,1), B(-3,3), C(3,3), D(3,1) are congruent.
Label your work and justify your answer.

(same length



$AC = \sqrt{(3 + {}^{+}3)^2 + (3 - 1)^2}$

$= \sqrt{(6)^2 + (2)^2}$

$= \sqrt{36 + 4}$

$= \boxed{\sqrt{40}}$

$BD = \sqrt{(3 + {}^{+}3)^2 + (1 - 3)^2}$

$= \sqrt{(6)^2 + (-2)^2}$

$= \sqrt{36 + 4}$

$= \boxed{\sqrt{40}}$

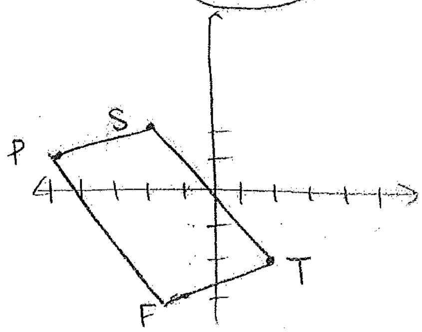
Yes, the diagonals are ≅, because both lengths are $\sqrt{40}$.

$\sqrt{4}\sqrt{10}$

or $2\sqrt{10}$

#11-12. Determine whether a figure with the given vertices is a parallelogram.
~~Use~~ the method indicated. Label your work and justify your answer.

11. P(-5,1) S(-2,2), T(2,-2), F(-1,-3); Use Slope Formula



m of $\overline{PS} = \frac{2-1}{-2+5} = \frac{1}{3}$ ✓

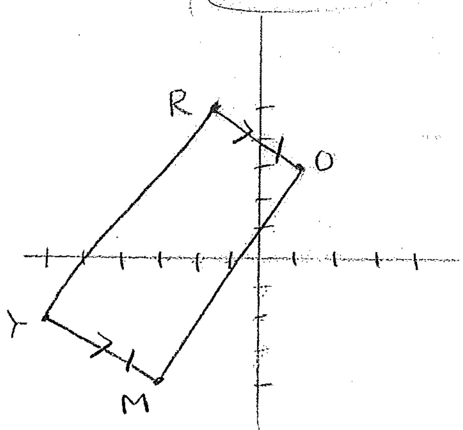
m of $\overline{FT} = \frac{-3+2}{-1-2} = \frac{-1}{-3} = \frac{1}{3}$ ✓

m of $\overline{ST} = \frac{-2-2}{2+2} = \frac{-4}{4} = -1$ ✓

m of $\overline{PF} = \frac{-3-1}{-1+5} = \frac{-4}{4} = -1$ ✓

Yes, it's a ▱ because both pairs of opposite sides are parallel.

12. R(-2,5), O(1,3), M(-3,-4), Y(-6,-2); Use Distance and Slope Formulas



Show that one pair of opposite sides is both ∥ and ≅.

m of RY, MO $\frac{7}{4}$

length RY, MO $= \sqrt{65}$

$RO = \sqrt{(1+2)^2+(3-5)^2}$

$= \sqrt{(3)^2+(-2)^2}$

$= \sqrt{9+4}$

$= \boxed{\sqrt{13}}$ ✓

m of $\overline{RO} = \frac{3-5}{1+2} = \boxed{\frac{-2}{3}}$ ✓

m of $\overline{YM} = \frac{-2+4}{-6+3} = \boxed{\frac{2}{-3}}$ ✓

$YM = \sqrt{(-6+3)^2+(-2+4)^2}$

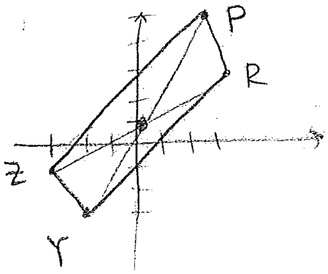
$= \sqrt{(-3)^2+(2)^2}$

$= \sqrt{9+4}$

$= \boxed{\sqrt{13}}$ ✓

Yes, it's a ▱ because one pair of opposite sides is both ∥ and ≅.

13. Prove the diagonals of the parallelogram YZPR bisect each other, if its vertices are Y(-2,-3), Z(-3,-1), P(2,5), and R(3,3)? Label your work and justify your answer.



midpoint of $\overline{PY} = \left(\frac{-2+2}{2}, \frac{-3+5}{2}\right) = (0,1)$

midpoint of $\overline{RZ} = \left(\frac{-3+3}{2}, \frac{-1+3}{2}\right) = (0,1)$

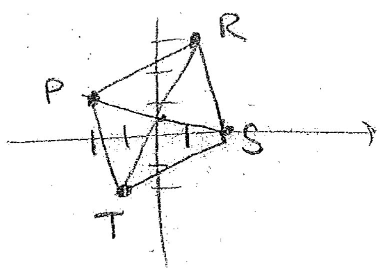
Yes, the diagonals of the ▱ bisect each other. because their midpoints are equal

14. Determine whether a figure with the given vertices is a parallelogram.
Label your work and justify your answer.

P(-2,1), R(1,3), S(2,0), T(-1,-2)

Circle the method you have chosen to use:

- Slope formula
- Distance formula
- Slope and Distance formulas
- Midpoint formula



midpt of $\overline{PS} = \left(\frac{-2+2}{2}, \frac{1+0}{2}\right)$

$= \left(0, \frac{1}{2}\right)$

midpt. of $\overline{RT} = \left(\frac{1+-1}{2}, \frac{3+-2}{2}\right)$

$= \left(0, \frac{1}{2}\right)$

yes, it is a ▱ because

m of $\overline{PR} = \frac{3-1}{1+2} = \frac{2}{3}$

m of $\overline{ST} = \frac{-2-0}{-1-2} = \frac{-2}{-3} = \frac{2}{3}$

m of $\overline{PT} = \frac{-2-1}{-1+2} = \frac{-3}{1}$

m of $\overline{RS} = \frac{0-3}{2-1} = \frac{-3}{1}$

$PR = \sqrt{(\ -\ )^2 + (\ -\ )^2}$

$ST = \sqrt{(\ \ )^2 + (\ -\ )^2}$