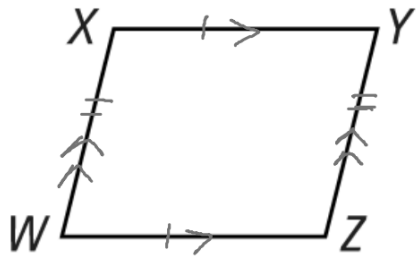
Parallelogram - A quadrilateral with both pairs of opposite sides congruent and both pairs of opposite sides parallel.

$\overline{WX} \parallel \overline{ZY}$

$\overline{WZ} \parallel \overline{XY}$

$\overline{WX} \cong \overline{ZY}$

$\overline{WZ} \cong \overline{XY}$



Quadrilateral *PQRS* is a parallelogram.

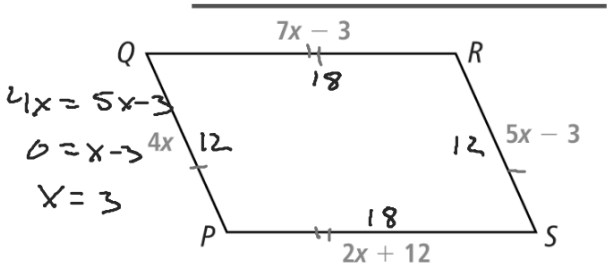
A. What is the value of *x*?

$7x-3=2x+12$

$5x=15$

$x=3$

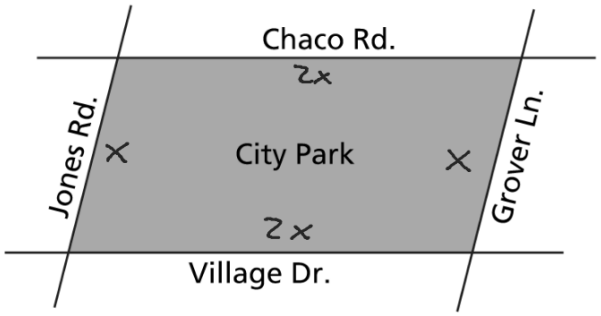
SOLUTION



B. What is the length of each side of *PQRS*?

2. The 600-meter fence around City Park forms a parallelogram. The fence along Chaco Road is twice as long as the fence along Grover Lane. What is the length of the fence along Jones Road?

Enter your answer.



$6x = 600$

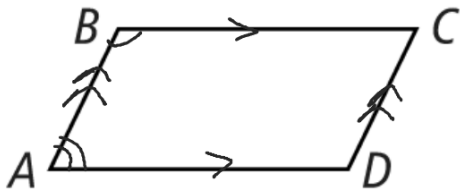
$x = 100$ m

Parallelogram - A quadrilateral with consecutive piars of angles supplementary.

If a quadrilateral is a parallelogram, then its consecutive angles are supplementary.

$\overline{AB} \parallel \overline{DC}$

$\overline{AD} \parallel \overline{BC}$



$m\angle A + m\angle B = 180$

$m\angle B + m\angle C = 180$

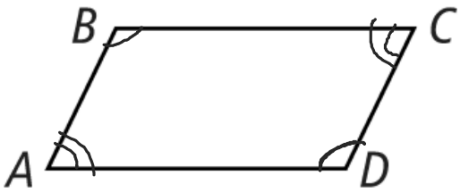
$m\angle C + m\angle D = 180$

$m\angle D + m\angle A = 180$

Parallelogram - A quadrilateral with both pairs of opposite angles congruent.

$\overline{AB} \parallel \overline{DC}$

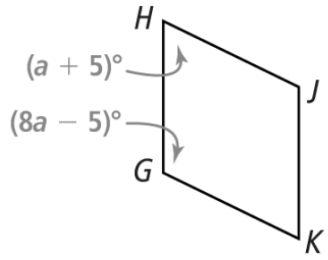
$\overline{AD} \parallel \overline{BC}$



$\angle A \cong \angle C$

$\angle B \cong \angle D$

4. Use the parallelogram shown.



a. Given parallelogram *GHJK*, what is the value of *a*?

$a+5+8a-5=180$

Enter your answer.

$9a=180$

$a=20$

b. What are $m\angle G$, $m\angle H$, $m\angle J$, and $m\angle K$?

$m\angle G=155$

$m\angle H=25$

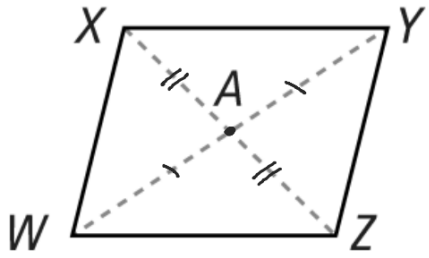
$m\angle J=155$

$m\angle K=25$

Parallelogram - A quadrilateral with both diagonals bisecting eachother.

$\overline{WX} \parallel \overline{ZY}$

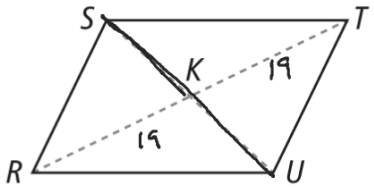
$\overline{WZ} \parallel \overline{XY}$



$\overline{AW} \cong \overline{AY}$

$\overline{AX} \cong \overline{AZ}$

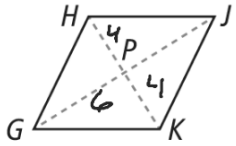
5. Use parallelogram *RSTU* with $SU = 35$ and $KT = 19$.



a. What is *SK*? = 17.5

b. What is *RT*? = 38

6. Given parallelogram $GHJK$, if $PK = 4$ and $HK = \frac{2}{3}(GJ)$, what is GP?

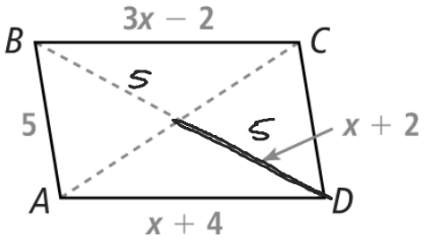


$8 = \frac{2}{3}(GJ)$

$12 = GJ$

$GP = \frac{12}{2} = 6$

Use parallelogram *ABCD* to find *BC*.



$3x-2=x+4$

$2x-2=4$

$2x=6$

$x=3$

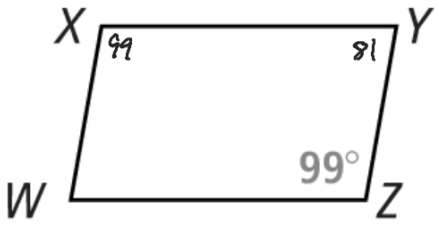
$BC=3x-2$

$=3(3)-2$

$=7$

Use parallelogram *ABCD* to find *BD*. $=10$

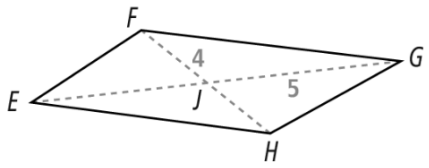
Use parallelogram *WXYZ* to find $m\angle WXY$.



180
$-\ 99$

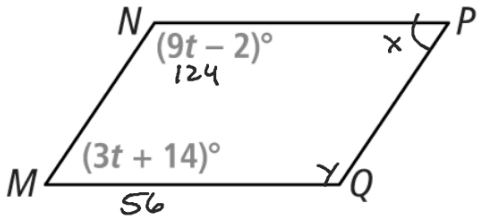
Use parallelogram *WXYZ* to find $m\angle XYZ$.

Use parallelogram *EFGH* to find *EJ*.



Use parallelogram *EFGH* to find *FH*.

Use parallelogram *MNPQ* to find $m\angle NPQ$. $=56$



$9t-2+36+14=180$

$12t+12=180$

$12t=168$

$t=14$

Use parallelogram *MNPQ* to find $m\angle PQM$. $=124$