Quadrilateral Properties with Algebra Segments
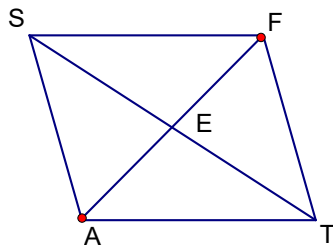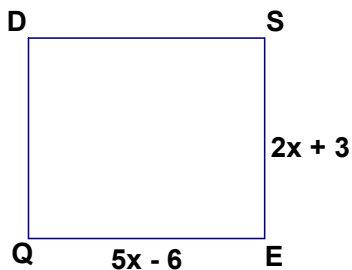
1. ABCD is a parallelogram. Find the measure of $\overline{AD}$ and $\overline{BC}$ and explain your answer.
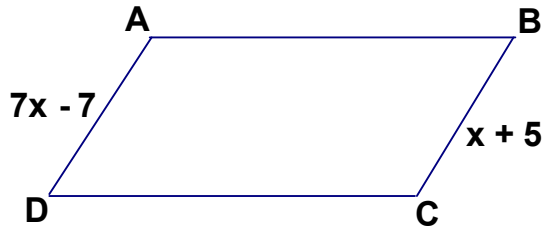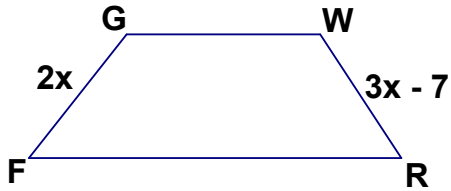

2. SFAT is a rhombus with $\overline{AE} = 2x - 3$ and $\overline{EF} = 5x - 21$.
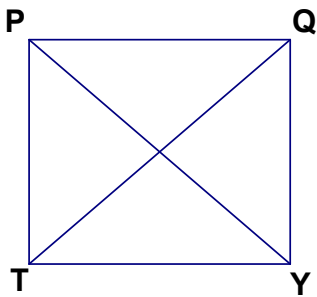Find $\overline{EF}$ and explain your answer.

3. DSEQ is a square. m $\overline{QE} = 5x - 6$ and m $\overline{SE} = 2x + 3$. Find all sides of the square and explain your answer.

4. Quad FGWR is an isosceles trapezoid. Find $\overline{WR}$ and explain your answer.

G ———— W
2x / \ 3x - 7
F ———————— R

5. PQYT is a square. $\overline{QT} = 3x - 2$ and $\overline{PY} = 5x - 15$. Find $\overline{QT}$ and $\overline{PY}$ and explain your answer.

P   Q

T   Y

6. In rectangle ABCD, $\overline{AB} = x + 4$, $\overline{BC} = 4x$, $\overline{AC} = 6x - 2$, and $\overline{BD} = 3x + 4$. Find $\overline{AD}$.

7. In trapezoid SABR, $\overline{SA} = 2x + 2$, $\overline{SB} = 3x$, $\overline{RB} = 4x - 1$, and $\overline{AR} = 6x - 12$.
What value of x would make SABR an isosceles trapezoid?

S   A

R   B