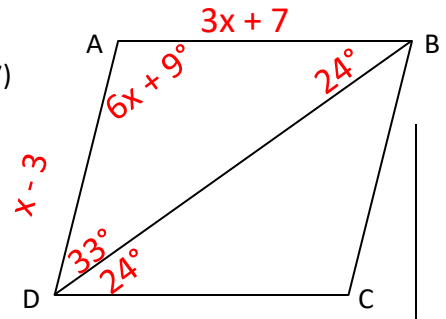
Geometry (G.CO.11)
Unit One B: Special Parallelograms #4 (HW47)

Name: _____
Date: _____ Period: _____

1. Quadrilateral ABCD is a parallelogram.



a.) If $m\angle CDB = 24^0$; $m\angle A = (6x + 9)^0$ and $m\angle BDA = 33^0$, find x.

33+24+6x+9 = 180

6x+66 = 180

6x = 114

x = 19

b.) The perimeter of ABCD is 56. Find the dimensions if AB = 3x + 7 and DA = x-3.

2(3x + 7) + 2(x – 3) = 56

6x+14+2x-6 = 56

8x+8 = 56

8x = 48

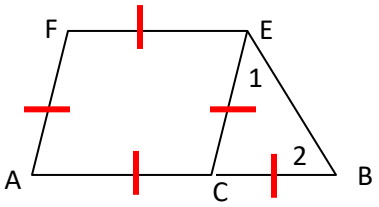
x = 6

AB = 18+7 = 25

DA = 3

2. Given: ACEF is a parallelogram;
$\angle 1 \cong \angle 2$; $\overline{AC} \cong \overline{BC}$

Prove: ACEF is a rhombus

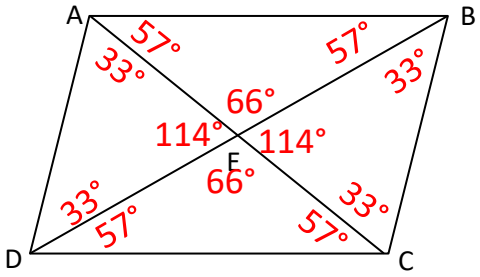


Statements	Reasons
1. $\angle 1 \cong \angle 2$	1. Given
2. $\overline{EC} \cong \overline{BC}$	2. Isosc Δ thm
3. $\overline{AC} \cong \overline{BC}$	3. Given
4. ACEF is ll gram	4. Given
5. $\overline{AF} \cong \overline{EC}$; $\overline{AC} \cong \overline{FE}$	5. ll gram→ opp sides ≅
6. $\overline{AF} \cong \overline{FE} \cong \overline{EC} \cong \overline{AC}$	6. Trans prop (2,3,5)
7. ACEF is rhombus	7. Def of rhombus

3. Think carefully about the properties of the polygon given below. Answer the questions accordingly.

Given: Rectangle ABCD,

$m\angle DAE = 33^0$



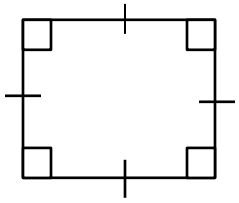
a.) $m\angle BAE =$ 57°

b.) $m\angle ABE =$ 57°

c.) $m\angle BEC =$ 114°

d.) $m\angle CED =$ 66°

4. List all of the quadrilateral names that can correctly be used to describe the figure below.



Parallelogram, Rectangle, Rhombus, Square

5. Decide if the following statements are sometimes, always, or never true.

a) Always If a quadrilateral has opposite sides congruent and one right angle, the figure is a rectangle. llgram All end up right

b) Sometimes If one angle of a parallelogram is a right angle, then the figure is a square. →Could just be a rectangle

c) Sometimes If the diagonals of a quadrilateral are congruent, then the figure is a square. →Could just be a rectangle

d) Sometimes If the diagonals of a parallelogram bisect the angles of the parallelogram, then the quadrilateral is a rectangle.

*if it's a square – rhombus is the shape that actually has opp ∠s bisected by diagonals.