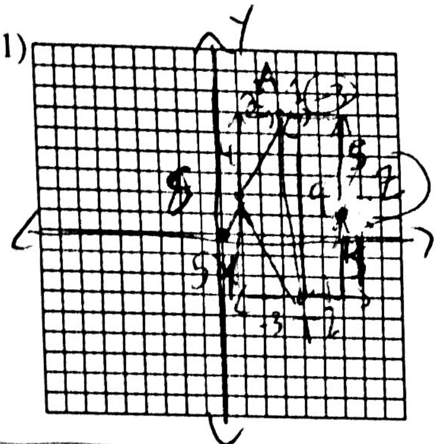
Name: ______________________
Date: ______________________
Class: ______________________

Geometry
Unit 8
HW 8-4b

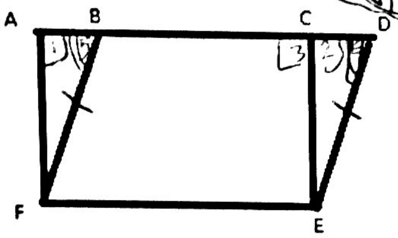
Using the given information and the diagram write a proof that shows the "Prove" statement is true.

1) 

If a triangle has points S (1,2), A(3, 6), and T(4, -3), what type of triangle is ΔSAT? Place a point Z so that SAZT is a parallelogram and explain.

distances
SA → $4^2+2^2=x^2$ $\sqrt{20}$
TA → $1^2+9^2=x^2$ $\sqrt{81}$
TS → $3^2+5^2=x^2$ $\sqrt{34}$
$(\sqrt{20})^2 \cdot \cdot = (\sqrt{81})^2$
$\neq 81$
TZ → $2^2+4^2=x^2$ obtuse $\sqrt{20}$
ZA → $3^2+5^2=x^2$ $\sqrt{34}$

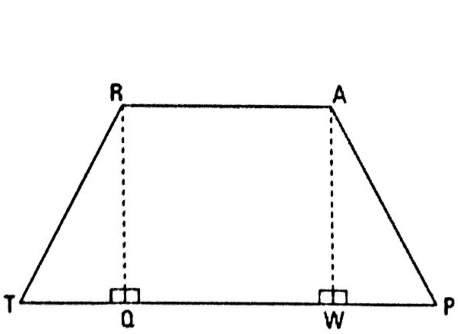
Based on my calc △TAS is an obtuse scalene △ b/c it has 3 dif sides and "hyp²" is larger in pyThag Theorem
Point Z would need to be at (6,1) b/c That would make opp sides ≅

2) 

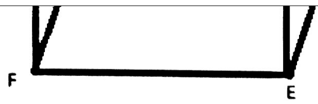
Given: $BDEF$ *is a parallelogram*
$\overline{FA} \perp \overline{AD}$
$\overline{CE} \perp \overline{AD}$
Prove: ACEF is a parallelogram

△s ≅ ⊥ prop

2) $\overline{FA} \perp \overline{AD}$ → given
m∠1 = 90° → ⊥ creates rt ∠s
$\overline{CE} \perp \overline{AD}$ → given
m∠2 = 90
m∠3 = 90 → ⊥ creates rt ∠s
(A) ∠2 ≅ ∠1 → Both 90°
BDEF is a ▱ → given
(S) $\overline{BF} \cong \overline{DE}$ → opp sides ▱ ≅
$\overline{BF} \parallel \overline{DE}$ → opp sides ▱ ∥
(A) ∠4 ≅ ∠5 → corr ∠s ≅ when lines ∥
△BAF ≅ △DCE → AAS
$\overline{AF} \cong \overline{CE}$ → CPCTC
$\overline{AF} \parallel \overline{CE}$ → Both ⊥ to same line
ACEF is a rect → ▱ (1 set opp sides ∥ and ≅) with 1 rt ∠ making all ∠s 90°.

3) 

Given: $\overline{TW} \cong \overline{QP}$
$\overline{RQ} \perp \overline{TP}$
$\overline{AW} \perp \overline{TP}$
$\overline{TR} \cong \overline{AP}$
Prove: RAWQ is a rectangle



Given: $BDEF$ *is a parallelogram*
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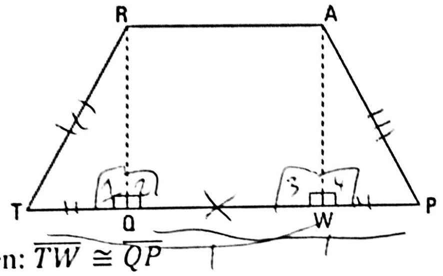
Prove: ACEF is a parallelogram

3)



Given: $\overline{TW} \cong \overline{QP}$
$\overline{RQ} \perp \overline{TP}$
$\overline{AW} \perp \overline{TP}$
$\overline{TR} \cong \overline{AP}$
Prove: RAWQ is a rectangle

$\cong \triangle s?$

$\boxed{\square \text{ w/ rt} \angle}$

3) $\overline{TW} \cong \overline{QP}$ → given

$\overline{QW} \cong \overline{QW}$ → anything $\cong$ to itself

$\overline{TQ} \cong \overline{WP}$ → subtraction property

$\overline{RQ} \perp \overline{TP}$ → given

$m\angle 1 = 90°$
$m\angle 2 = 90°$ → $\perp$ creates rt $\angle$s

$\overline{AW} \perp \overline{TP}$ → given

$m\angle 3 = 90°$
$m\angle 4 = 90°$ → $\perp$ creates rt $\angle$s

$\angle 1 \cong \angle 2$ → Both $90°$

$\overline{TR} \cong \overline{AP}$ → given

$\triangle TRQ \cong \triangle PAW$ → HL

$\overline{RQ} \cong \overline{AW}$ → CPCTC

$\overline{RQ} \parallel \overline{AW}$ → Both $\perp$ to same side

RQWA is a rect → $\square$ (1 pair of $\parallel / \cong$ sides) w/ 1 rT $\angle$ making all $\angle$s right