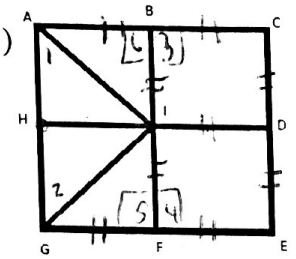
Name: _____
Date: _____
Class: _____

Geometry
Unit 8
HW 8-9

1)



Given: BCEF is a rectangle
BCDI is a square
ACEG is a parallelogram
B and F are midpoints
$\overline{IF} \cong \overline{ID}$

Prove: ΔAIG is isosceles

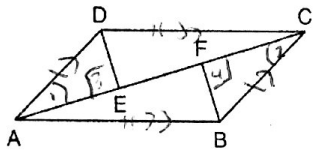
$\Delta BIA \stackrel{?}{=} \Delta FIG$?

→ $\overline{AI} \stackrel{?}{=} \overline{IG}$ or $\angle 1 \stackrel{?}{=} \angle 2$

BCDF is a rect → given
$m\angle 3 = 90°$
$m\angle 4 = 90°$ → rect have 4 rt ∠s
$m\angle 5 = 90°$ → supp (lin pair) to rt ∠s
$m\angle 6 = 90°$
$\angle 5 \stackrel{?}{=} \angle 6$ → Both 90°
ACEG is a □ → given
$\overline{AC} \stackrel{?}{=} \overline{GE}$ → opp sides □ $\stackrel{?}{=}$
B & F are mdpts → given
$\overline{BA} \stackrel{?}{=} \overline{FG}$ → Both are 1/2 of $\stackrel{?}{=}$ sides b/c of mdpt

BCDI is a square → given
$\overline{BI} \stackrel{?}{=} \overline{ID}$ → all sides of a square are $\stackrel{?}{=}$
$\overline{IF} \stackrel{?}{=} \overline{ID}$ → given
$\overline{BI} \stackrel{?}{=} \overline{IF}$ → Both $\stackrel{?}{=} \overline{ID}$
$\Delta ABI \stackrel{?}{=} \Delta GFI$ → SAS
$\overline{AI} \stackrel{?}{=} \overline{IG}$ → CPCTC
ΔAIG is isos → it has 2 $\stackrel{?}{=}$ legs

2) In quadrilateral $ABCD$, $\overline{AB} \cong \overline{CD}$, $\overline{AB} \parallel \overline{CD}$, and $\overline{BF}$ and $\overline{DE}$ are perpendicular to diagonal $\overline{AC}$ at points F and E.



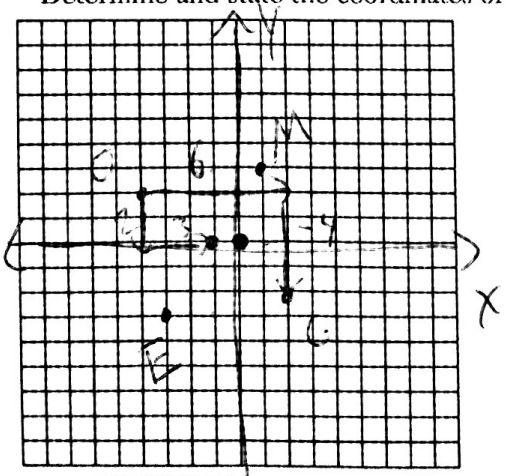
Prove: $\overline{AE} \cong \overline{CF}$

$\Delta AED \stackrel{?}{=} \Delta CFB$

$\overline{AB} \stackrel{?}{=} \overline{CD}$ → given
$\overline{AB} \parallel \overline{CD}$ → given
ABCD is a □ → it has 1 set of $\parallel$ $\stackrel{?}{=}$ sides
$\overline{AD} \parallel \stackrel{?}{=} \overline{BC}$ → opp sides □ are $\parallel \stackrel{?}{=}$
$\angle 1 \stackrel{?}{=} \angle 2$ → alt int ∠s $\stackrel{?}{=}$ when lines $\parallel$
$\overline{BF} \perp \overline{AC}$
$\overline{DE} \perp \overline{AC}$ → given

$m\angle 3 = 90°$ → ⊥ creates
$m\angle 4 = 90°$ → rt ∠s
$\angle 3 \stackrel{?}{=} \angle 4$ → Both 90°
$\Delta AED \stackrel{?}{=} \Delta CFB$ → AAS
$\overline{AE} \stackrel{?}{=} \overline{CF}$ → CPCTC

3) In square $GEOM$, the coordinates of G are $(2,-2)$ and the coordinates of O are $(-4,2)$. Determine and state the coordinates of vertices E and M.



$E(-3,-3)$ $M(1,3)$

$\overline{GO}$ is a diag
$\overline{EM}$ is a diag

diags ⊥ ✓
diags $\stackrel{?}{=}$ → 4 $\stackrel{?}{=}$ parts
✓ diags bisect

Slopes
$\overline{OG} \rightarrow \frac{-4}{6}$
$\overline{EM}$ must be $\frac{6}{4}$

4 $\stackrel{?}{=}$ parts
Each must be 2 by 3

mdpt
$2 + -4 = -2/2 = -1$
$-2 + 2 = 0/2 = 0$
$(-1, 0)$

go up 3 (right) over 2 from $(-1,0)$ and down 3 left 2