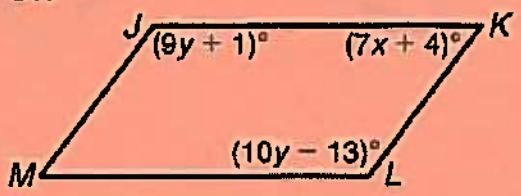
Geometry H
Quadrilaterals Unit Review

Name _____
Period _____ **Date** _____

I. G-CO.11 Learning Target: *I can prove theorems about parallelograms.*

1. Prove that *JKLM* is a parallelogram for $x = 7$ and $y = 14$.



$(9y+1) = (10y-13)$

$9(14)+1 = 10(14)-13$ Opposite ∠s are ≅

$126+1 = 140-13$

$127 = 127$

$(7(x+4) + (10y-13) = 180$

$(7x+4) + 127 = 180$ Consecutive ∠s R Supp.

$7x+4 = 53$

$7x = 49$

$x = 7$

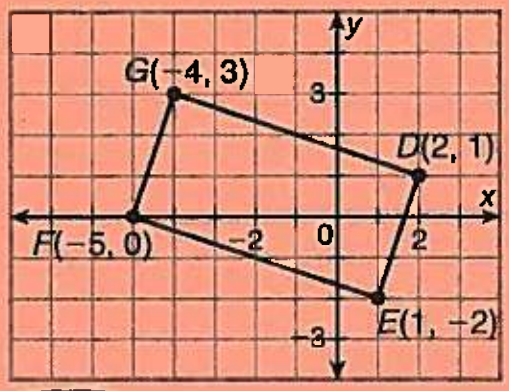
$127 + 127 + 53 + \angle M = 360$

$254 + 53 + \angle M = 360$ Opp ∠s of a ▱ are ≅.

$307 + \angle M = 360$

$\angle M = 53$

2. Tell whether the parallelogram is a rectangle, rhombus, or square. Justify your answer.



Length

$FG = 1^2+3^2 = c^2$
$1+9 = c^2$
$10 = c^2$
$FG = \sqrt{10}$

$DE = 1^2+3^2 = c^2$
$1+9 = c^2$
$10 = c^2$
$DE = \sqrt{10}$

$DG = 2^2+6^2 = c^2$
$4+36 = c^2$
$40 = c^2$
$DG = \sqrt{40}$

$EF = 2^2+6^2 = c^2$
$4+36 = c^2$
$40 = c^2$
$EF = \sqrt{40}$

Opposite sides R ≅.

Slope

$FG = \frac{\text{RISE}}{\text{RUN}} = \frac{3}{1}$

$DE = \frac{\text{RISE}}{\text{RUN}} = \frac{3}{1}$

$DG = \frac{\text{RISE}}{\text{RUN}} = \frac{-2}{6} = -\frac{1}{3}$

$EF = \frac{\text{RISE}}{\text{RUN}} = -\frac{1}{3}$

Opposite sides are parallel. Consecutive sides are perpendicular.

Rectangle because opposite side are congruent & consecutive sides are perpendicular