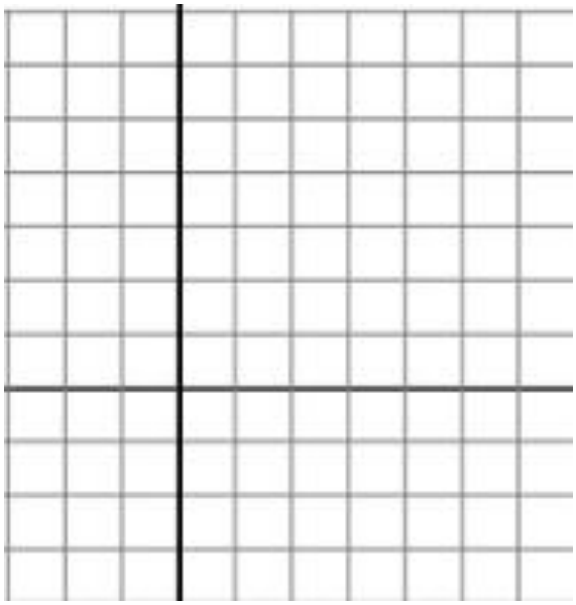
Points of Concurrency on a Coordinate Graph

Name_____

Worksheet

1. The vertices of ΔABC are A(1,6), B(5,4), C(5,-2). Find the coordinates of the **Circumcenter**.



a) Graph and label the triangle

b) Find the midpoint of each side of the triangle

$Midpoint_{AB}$ = _____

$Midpoint_{BC}$ = _____

$Midpoint_{AC}$ = _____

c) Find the slope of each side of the triangle

M_{AB} = _____

M_{BC} = _____

M_{AC} = _____

d) Find the slope of each perpendicular bisector

$\perp M_{AB}$ = _____

$\perp M_{BC}$ = _____

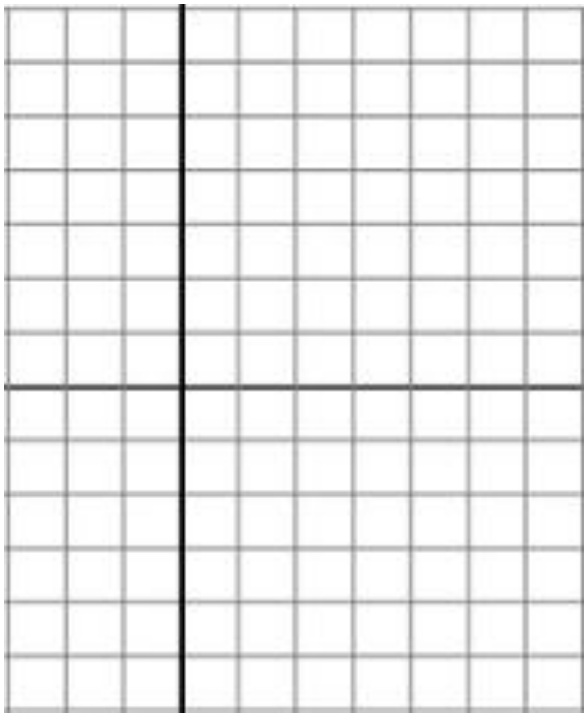
$\perp M_{AC}$ = _____

e) Use the midpoint and the perpendicular slope to accurately draw each perpendicular bisector on the triangle.

f) Find the coordinates of the Circumcenter in ΔABC by finding the point of intersection of the perpendicular bisectors

2. The vertices of ΔDEF are D(5,5), E(5,-4), F(-1,-1). Find the coordinates of the **Orthocenter**.

a) Graph and label the triangle



b) Find the slope of each side of the triangle

M_{DE} = _____

M_{EF} = _____

M_{DF} = _____

c) Find the slope of each altitude

$\perp M_{DE}$ = _____

$\perp M_{EF}$ = _____

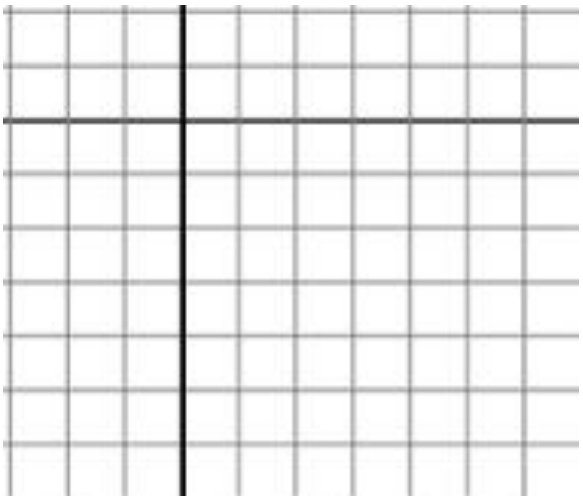
$\perp M_{DF}$ = _____

d) Use the perpendicular slope to accurately draw each altitude on the triangle.

e) Find the coordinates of the Orthocenter in ΔDEF by finding the point of intersection of the altitudes

3. The vertices of ΔGHI are G(6,-1), H(4,-5), I(-2,-5). Find the coordinates of the **Circumcenter**.

a) Graph and label the triangle



b) Find the midpoint of each side of the triangle

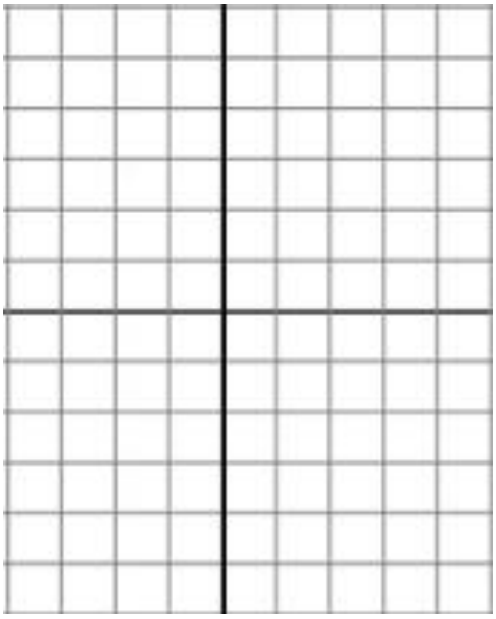
c) Find the slope of each side of the triangle

d) Find the slope of each perpendicular bisector

e) Use the midpoint and the perpendicular slope to accurately draw each perpendicular bisector on the triangle.

f) Find the coordinates of the Circumcenter in ΔGHI by finding the point of intersection of the perpendicular bisectors.

4. The vertices of ΔJKL are J(-2,4), K(2,0), L(-2,-4). Find the coordinates of the **Circumcenter**. Show all work.



a) Graph and label the triangle

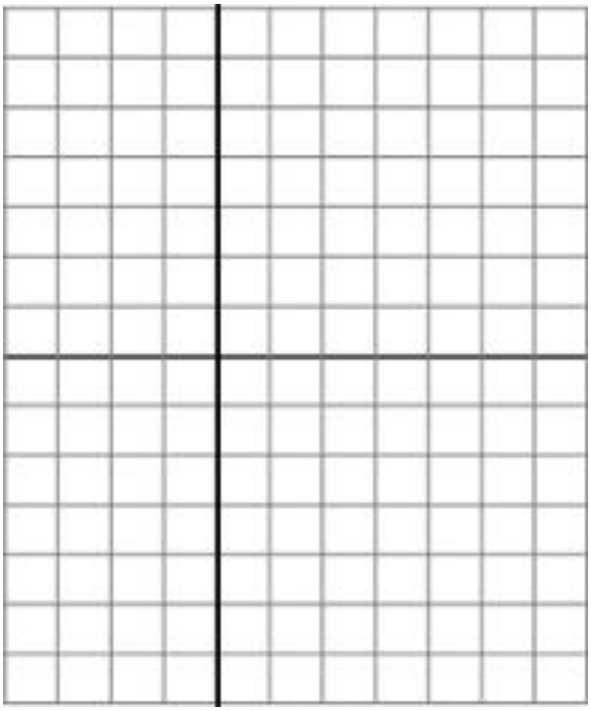
b) Find the midpoint of each side of the triangle

c) Find the slope and perpendicular slope of each side of the triangle

d) Use the midpoint and the perpendicular slope to accurately draw each perpendicular bisector on the triangle.

e) Find the coordinates of the Circumcenter in ΔJKL by finding the point of intersection of the perpendicular bisectors.

5. The vertices of ΔMNO are M(-2,5), N(6,-3), O(2,-5). Find the coordinates of the **Centroid**. Show all work.



a) Graph and label the triangle

b) Find the midpoint of each side of the triangle

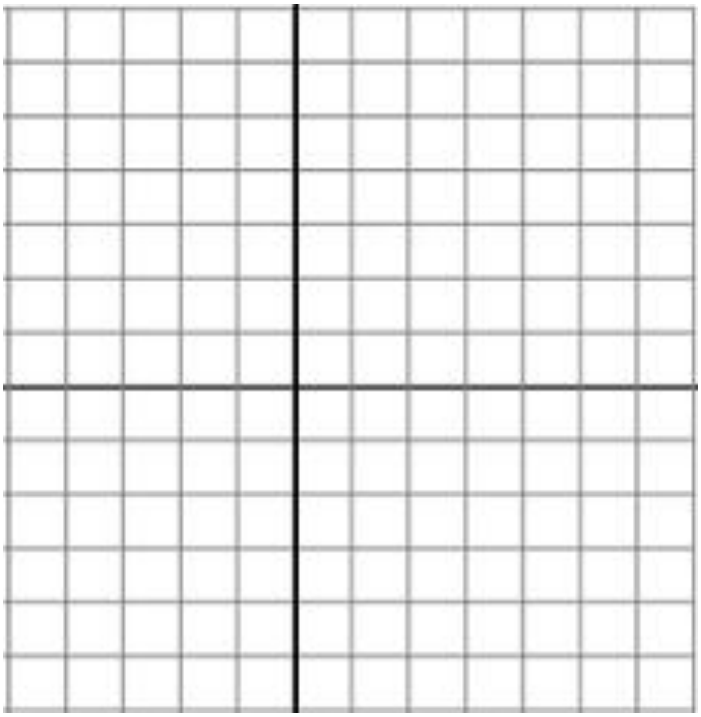
c) Use the midpoint to accurately draw each median on the triangle.

d) Find the coordinates of the Centroid in ΔMNO by finding the point of intersection of the medians.

6. The vertices of ΔPQR are P(6,3), Q(6,-5), R(-4,-5). Find the coordinates of the **Orthocenter**.

a) Graph and label the triangle

b) Find the slope and perpendicular slope of each side of the triangle



c) Use the perpendicular slope to accurately draw each altitude on the triangle.

d) Find the coordinates of the Orthocenter in ΔPQR by finding the point of intersection of the altitudes