MPM 2D1 PRACTICE QUEST Name:_____

Knowledge	Application	THINKING
/12	/21	/10

Knowledge:

1. Given the points $A(-1,5)$, $B(2,9)$, $C(-4,8)$, then determine the following:

a) the slope of the line passing through AB.

_____

[2]

b) the slope of the line perpendicular to the line segment AC.

_____

[2]

c) the midpoint of the line segment BC.

_____

[2]

d) the exact length of the line segment AC. _____

[2]

2. Determine the equation of the line in **standard form** that is **perpendicular** to the line $3x-6y+8=0$ and passes through the point $P(-1,2)$.

[4]

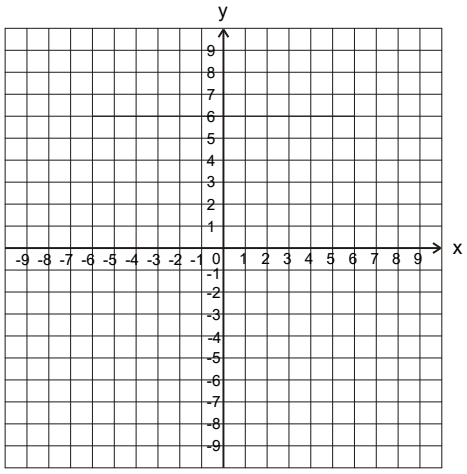
Application:

3. The point $F(3,-9)$ is the midpoint of the line segment JK. If endpoint J is located at $(x,2)$ and K is located at $(17,y)$, find the value of the missing coordinates.

[4]

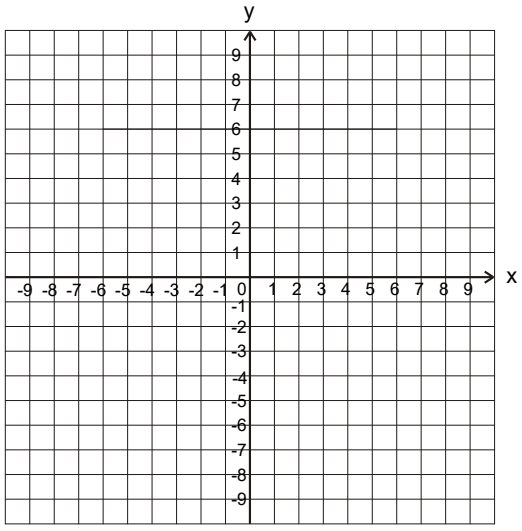
4. On the grid below, draw triangle AHS with vertices $A(4,8),\ H(-4,-2),\ and\ \ S(8,-8)$. Draw a labelled diagram of the median from $H\ to\ AS$. Determine algebraically the length of the median from $H\ to\ AS$.

[4]



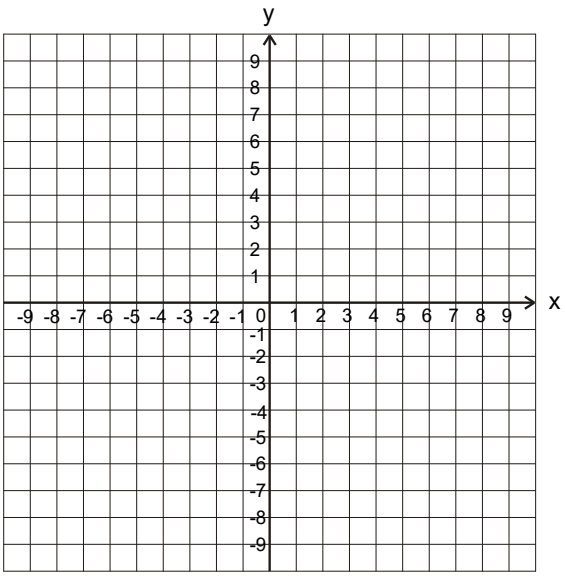
5. On the grid below, draw triangle TRW with vertices $T(-7,3)\ R(-3,9)\ W(9,1)$. Draw a labelled diagram of the altitude from $R\ to\ TW$. Determine algebraically the equation of the altitude.

[5]



6. The coordinates of two towns are $T(8,3)\ and\ G(2,-9)$. Plot and label the two towns on the grid below. Draw a labelled diagram of the perpendicular bisector of the line segment joining these two towns. Determine algebraically the equation of the perpendicular bisector. If the two towns have decided to build a recreation centre at $(-5,2)$, determine if this is a good place to build. Justify your answer.

[8]



THINKING:

7. Determine the shortest distance from the point $Q(5, -4)$ to the line $4x - 3y + 18 = 0$. Include a fully labelled diagram. Include an algebraic solution.

[10]