G.GPE.A.2: Locus 3

1 In a coordinate plane, the locus of points 5 units from the x-axis is the
   1) lines $x = 5$ and $x = -5$
   2) lines $y = 5$ and $y = -5$
   3) line $x = 5$, only
   4) line $y = 5$, only

2 In a coordinate plane, how many points are both 5 units from the origin and 2 units from the x-axis?
   1) 1
   2) 2
   3) 3
   4) 4

3 How many points are both 4 units from the origin and also 2 units from the line $y = 4$?
   1) 1
   2) 2
   3) 3
   4) 4

4 In the coordinate plane, what is the total number of points 5 units from the origin and equidistant from both the x- and y-axes?
   1) 1
   2) 2
   3) 0
   4) 4

5 How many points in the coordinate plane are 3 units from the origin and also equidistant from both the x-axis and the y-axis?
   1) 1
   2) 2
   3) 8
   4) 4

6 How many points are 3 units from the origin and also equidistant from both the x-axis and y-axis?
   1) 1
   2) 2
   3) 0
   4) 4
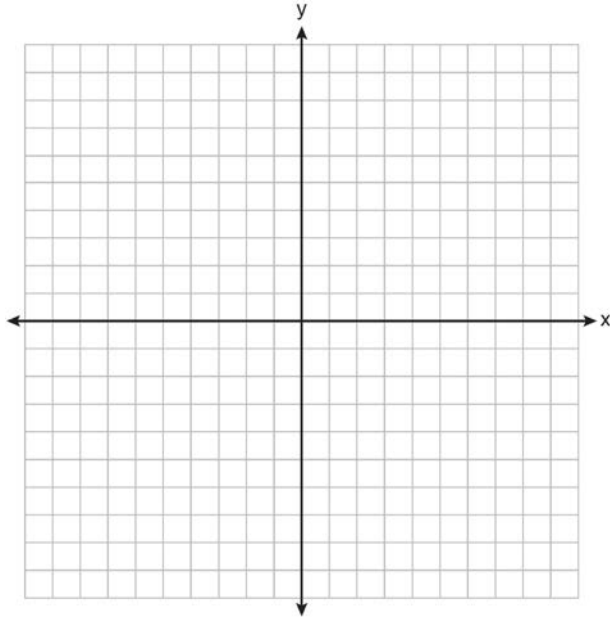
7 The graph below shows the locus of points equidistant from the x-axis and y-axis. On the same set of axes, graph the locus of points 3 units from the line $x = 0$. Label with an **X** *all* points that satisfy both conditions.
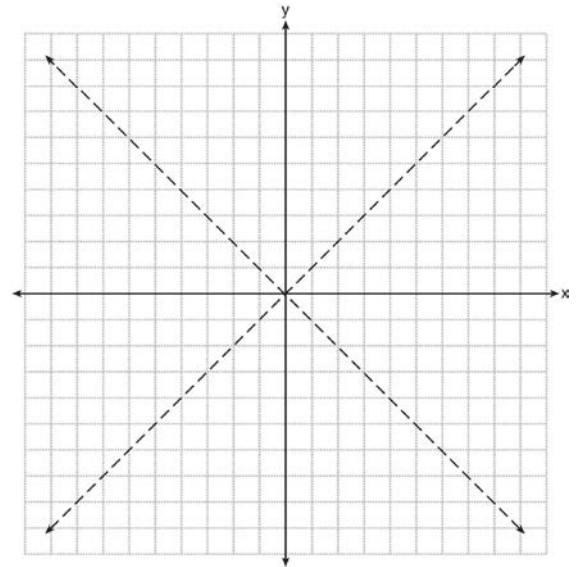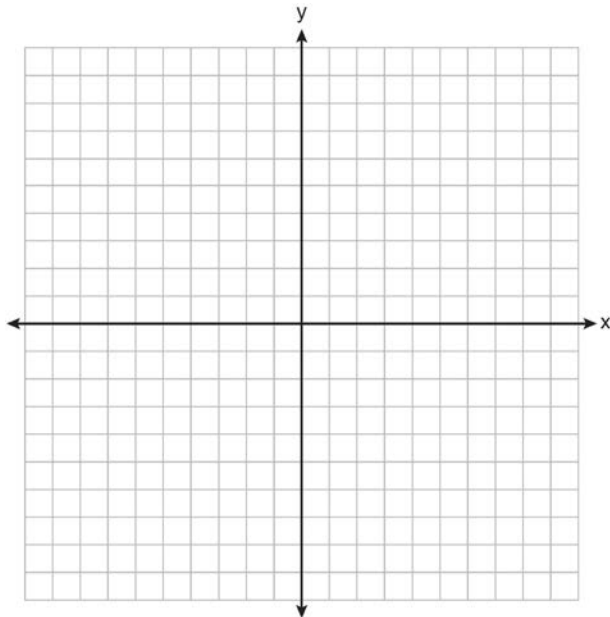

8 On the grid below, graph the points that are equidistant from both the x and y axes and the points that are 5 units from the origin. Label with an **X** all points that satisfy *both* conditions.
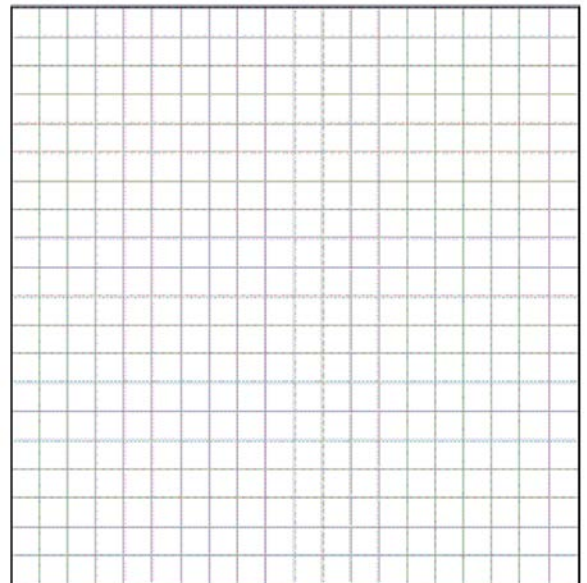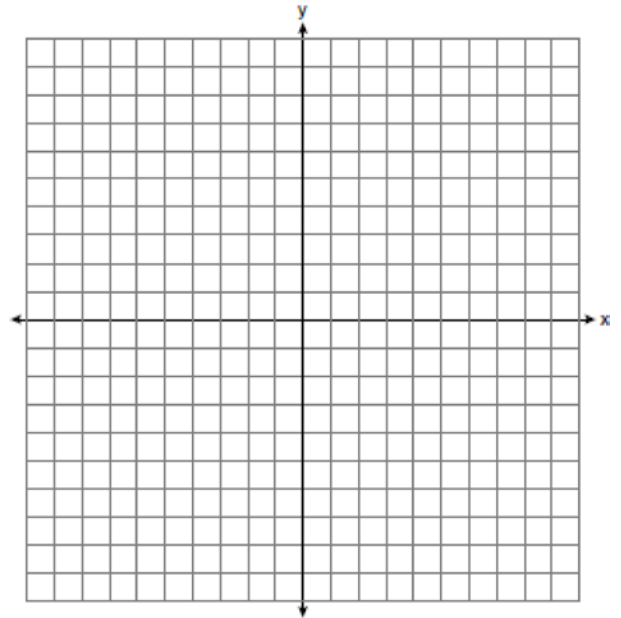
9   On the set of axes below, sketch the points that are 5 units from the origin and sketch the points that are 2 units from the line $y = 3$. Label with an **X** all points that satisfy both conditions.
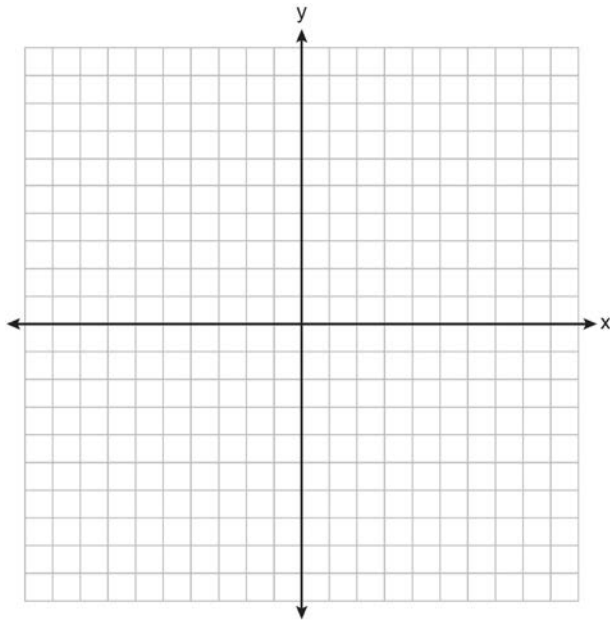
11   On the set of coordinate axes below, graph the locus of points that are equidistant from the lines $y = 6$ and $y = 2$ and also graph the locus of points that are 3 units from the y-axis. State the coordinates of *all* points that satisfy *both* conditions.

10   On the set of axes below, graph the locus of points that are four units from the point $(2,1)$. On the same set of axes, graph the locus of points that are two units from the line $x = 4$. State the coordinates of all points that satisfy both conditions.

12 A city is planning to build a new park. The park must be equidistant from school A at $(3,3)$ and school B at $(3,-5)$. The park also must be exactly 5 miles from the center of town, which is located at the origin on the coordinate graph. Each unit on the graph represents 1 mile. On the set of axes below, sketch the compound loci and label with an **X** all possible locations for the new park.
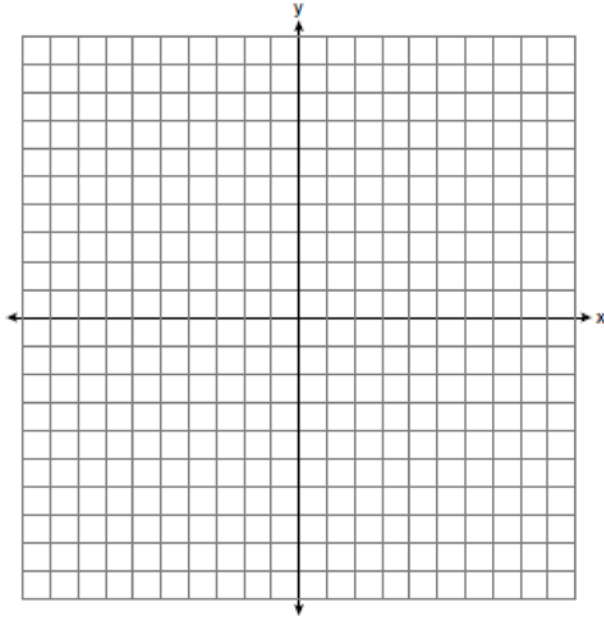
13 On the set of axes below, graph the locus of points that are 4 units from the line $x = 3$ and the locus of points that are 5 units from the point $(0,2)$. Label with an **X** all points that satisfy both conditions.
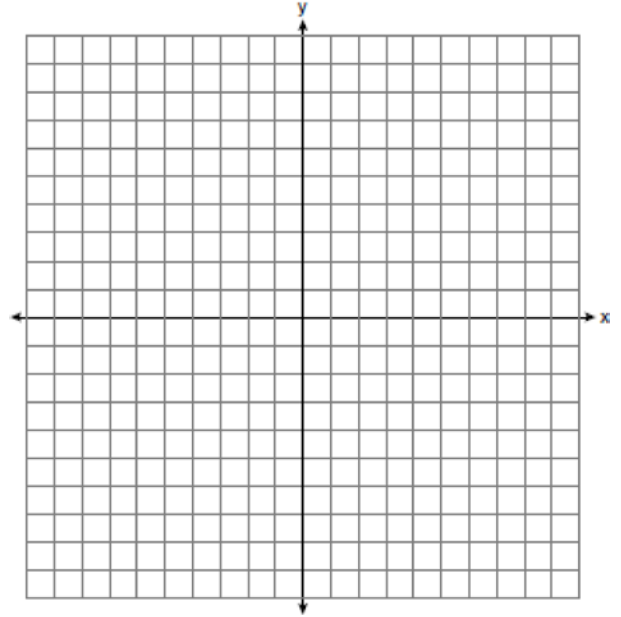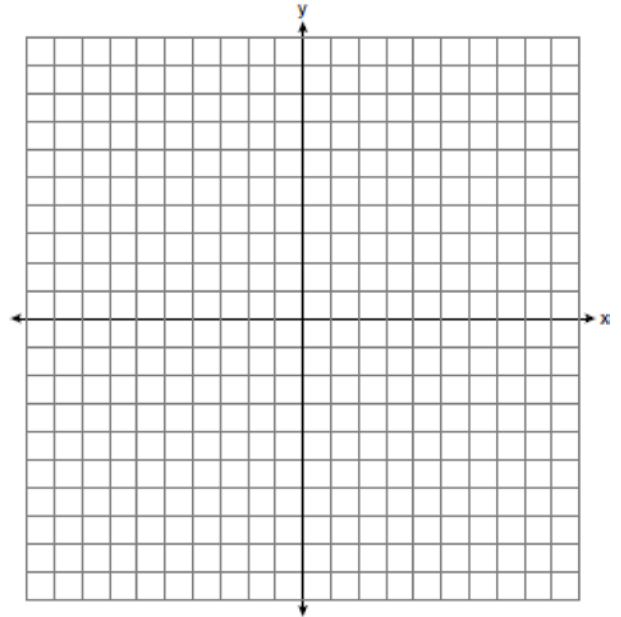
14 On the set of axes below, graph the locus of points 4 units from $(0,1)$ and the locus of points 3 units from the origin. Label with an **X** *any* points that satisfy *both* conditions.

Name: _____
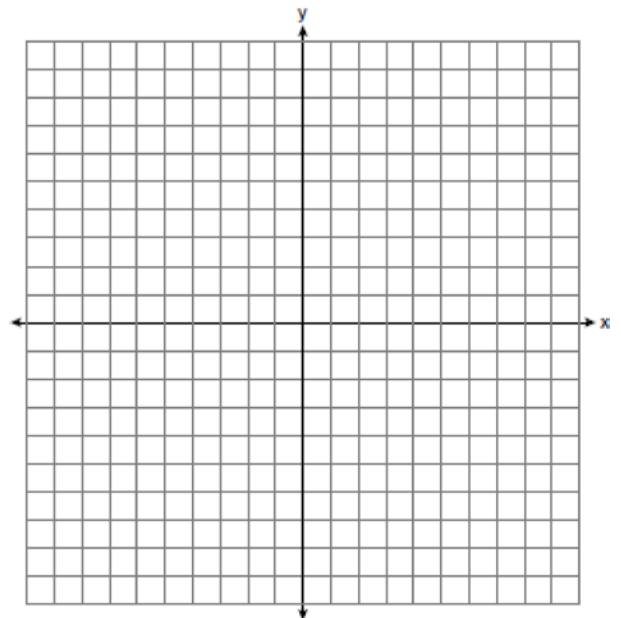
15 On the set of axes below, graph the locus of points 4 units from the *x*-axis and equidistant from the points whose coordinates are (−2,0) and (8,0). Mark with an **X** all points that satisfy *both* conditions.
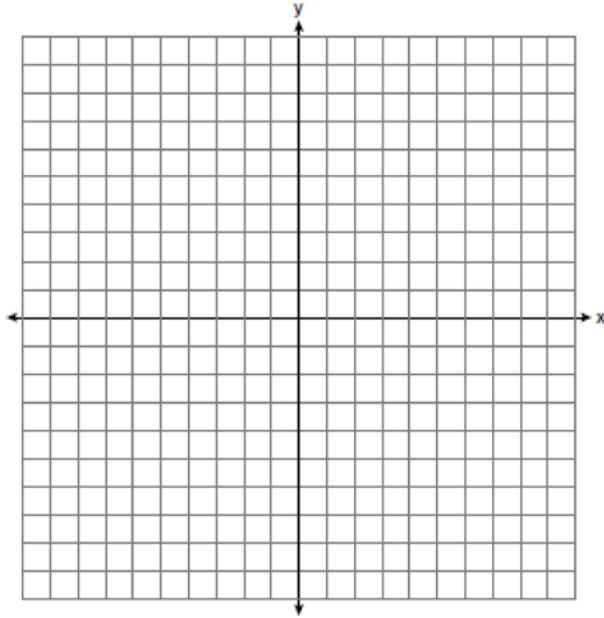
17 On the set of axes below, graph the locus of points 5 units from the point (3,−2). On the same set of axes, graph the locus of points equidistant from the points (0,−6) and (2,−4). State the coordinates of all points that satisfy *both* conditions.

16 On the set of axes below, sketch the locus of points 2 units from the *x*-axis and sketch the locus of points 6 units from the point (0,4). Label with an **X** all points that satisfy both conditions.
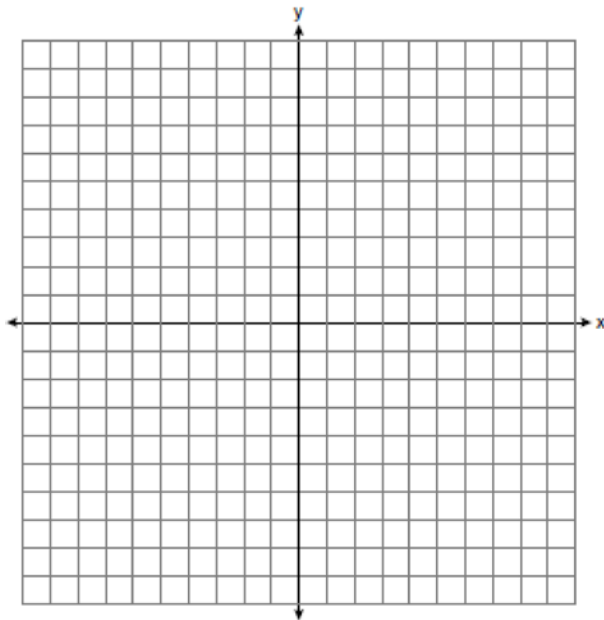
18 On the set of axes below, graph two horizontal lines whose *y*-intercepts are $(0,-2)$ and $(0,6)$, respectively. Graph the locus of points equidistant from these horizontal lines. Graph the locus of points 3 units from the *y*-axis. State the coordinates of the points that satisfy both loci.
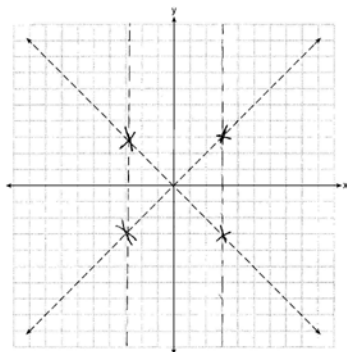
19 On the set of axes below, graph the locus of points 5 units from the point $(2,-3)$ and the locus of points 2 units from the line whose equation is $y = -1$. State the coordinates of all points that satisfy *both* conditions.
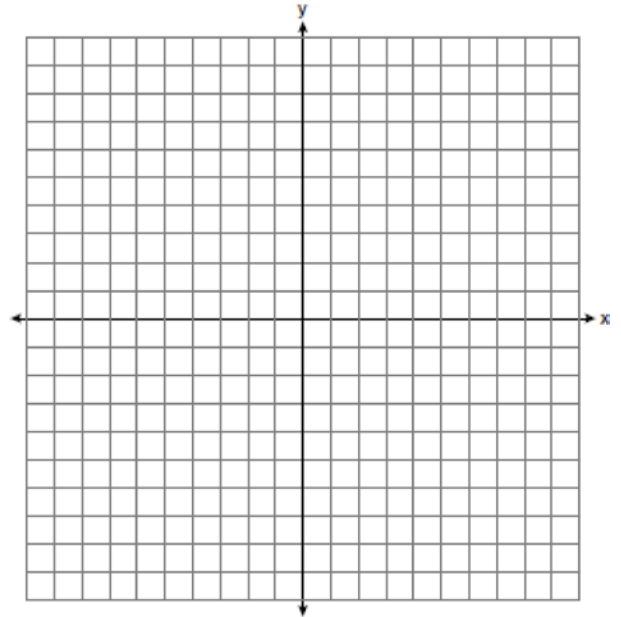
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Answer Section

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2 ANS: 4   REF: 060912ge
3 ANS: 2   REF: 081117ge
4 ANS: 4   REF: 080003a
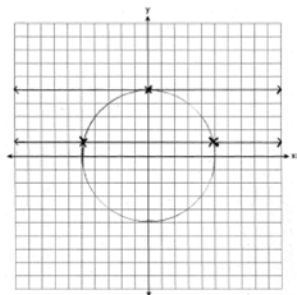5 ANS: 4   REF: 011407ge
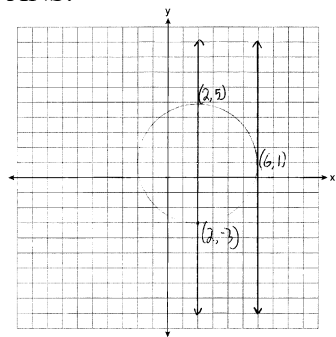6 ANS: 4   REF: 011604ge
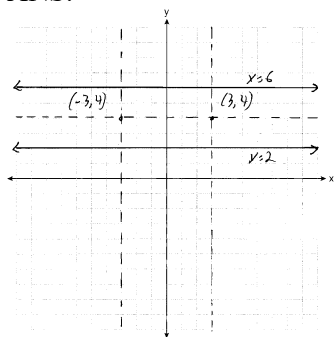7 ANS:

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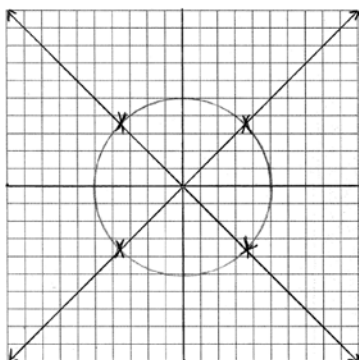
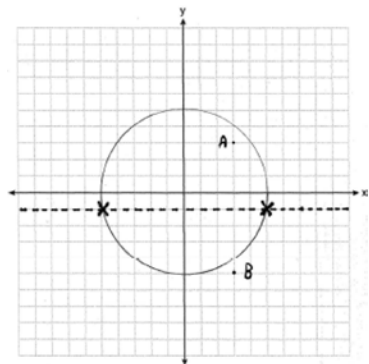REF: 011037ge

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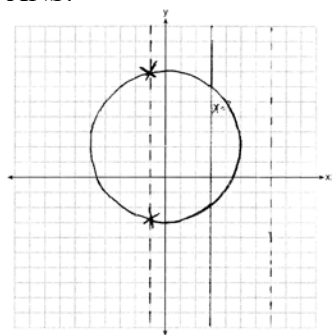REF: 080936ge
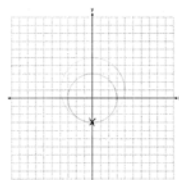
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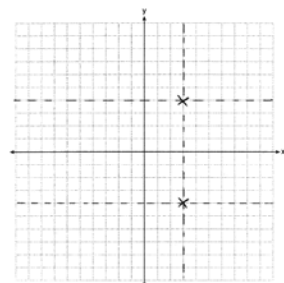11 ANS:

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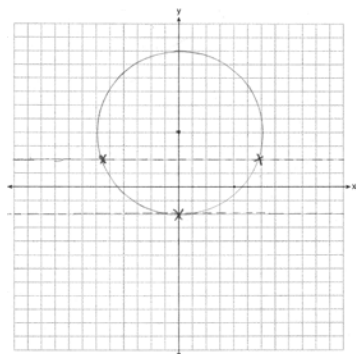12 ANS:

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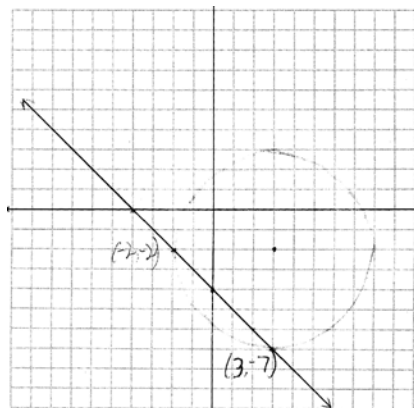13 ANS:

REF: 061234ge

14 ANS:

REF: 011331ge

15 ANS:

REF: 061333ge

16 ANS:

REF: 061436ge

17 ANS:

$(x-3)^2 + (y+2)^2 = 25$ $m = \dfrac{-6--4}{0-2} = \dfrac{-2}{-2} = 1$ $M\left(\dfrac{0+2}{2}, \dfrac{-6+-4}{2}\right) = M(1,-5)$
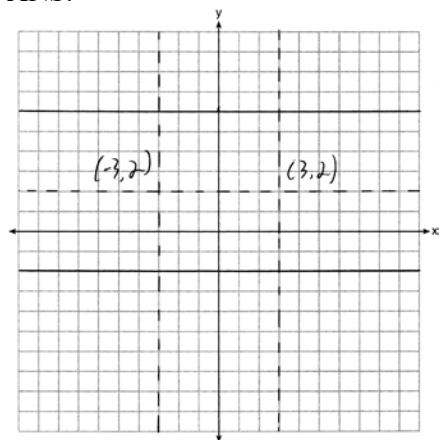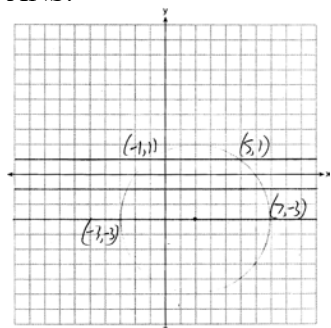
$m_\perp = -1$

$-5 = (-1)(1) + b$

$-4 = b$

$y = -x - 4$

REF: 081438ge

18 ANS:

REF: 011536ge

19 ANS:

REF: 081535ge