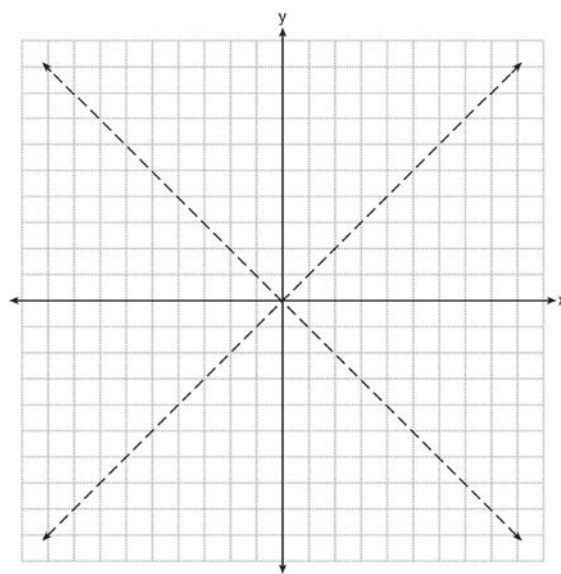


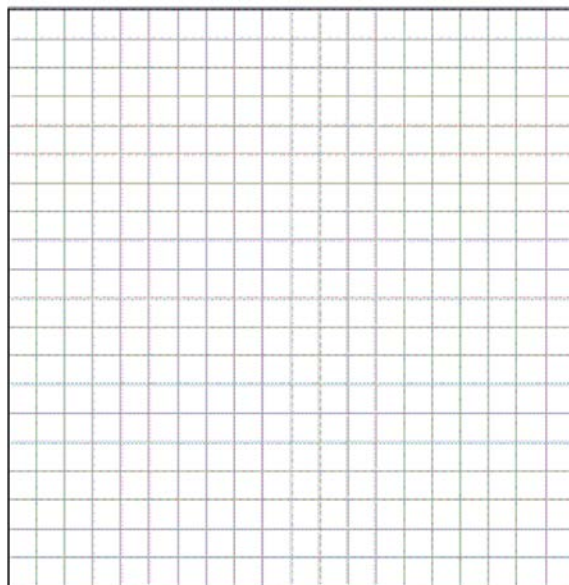
G.G.23: Locus: Graph and solve compound loci in the coordinate plane

- 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

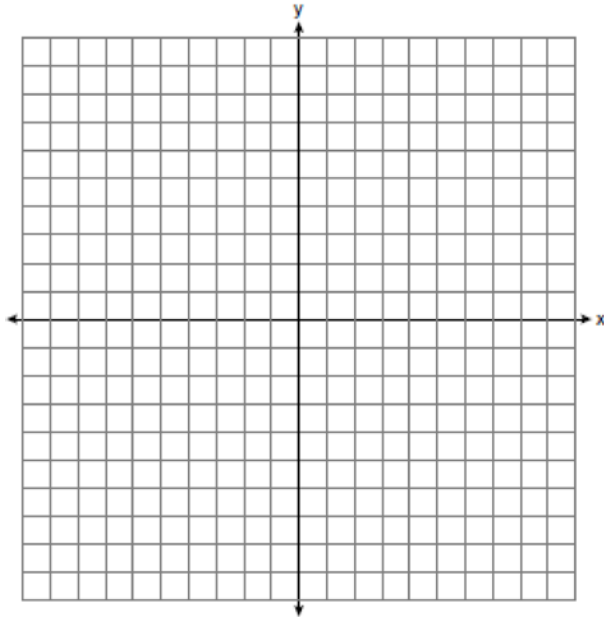
- 6 The graph below shows the locus of points equidistant from the x -axis and y -axis. On the same set of axes, graph the locus of points 3 units from the line $x = 0$. Label with an **X** all points that satisfy both conditions.



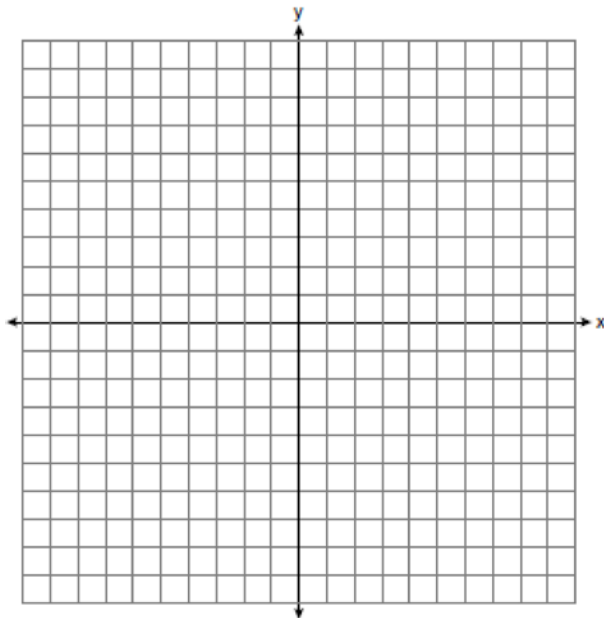
- 7 On the grid below, graph the points that are equidistant from both the x and y axes and the points that are 5 units from the origin. Label with an **X** all points that satisfy both conditions.



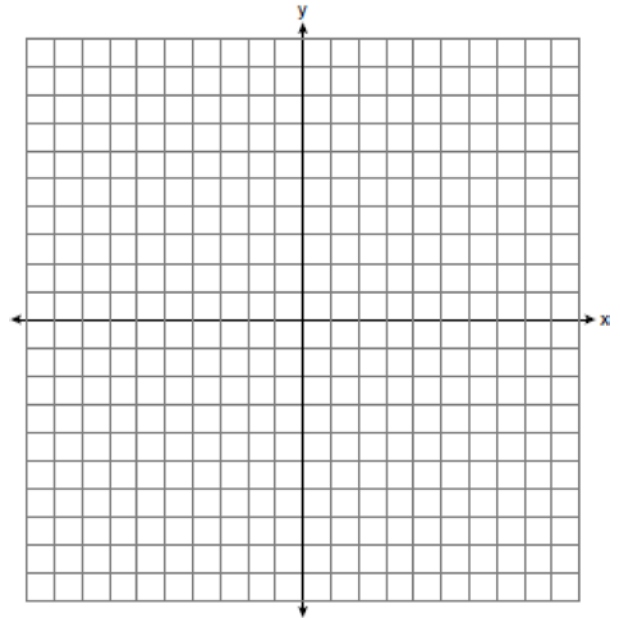
- 8 On the set of axes below, sketch the points that are 5 units from the origin and sketch the points that are 2 units from the line $y = 3$. Label with an **X** all points that satisfy *both* conditions.



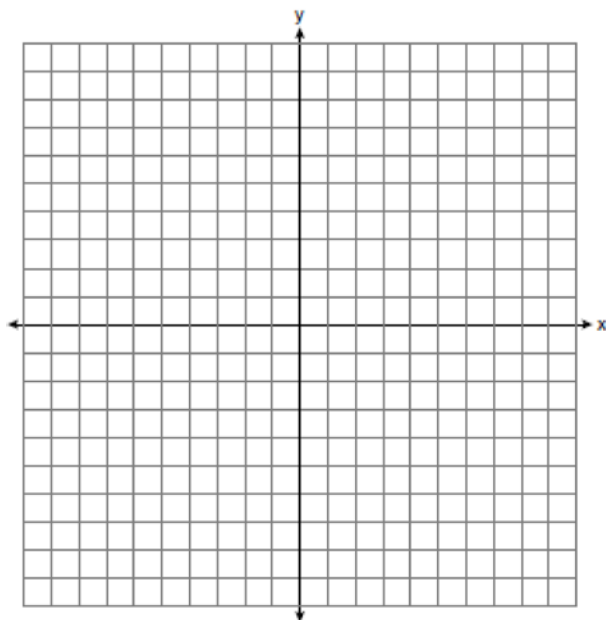
- 9 On the set of axes below, graph the locus of points that are four units from the point $(2, 1)$. On the same set of axes, graph the locus of points that are two units from the line $x = 4$. State the coordinates of all points that satisfy both conditions.



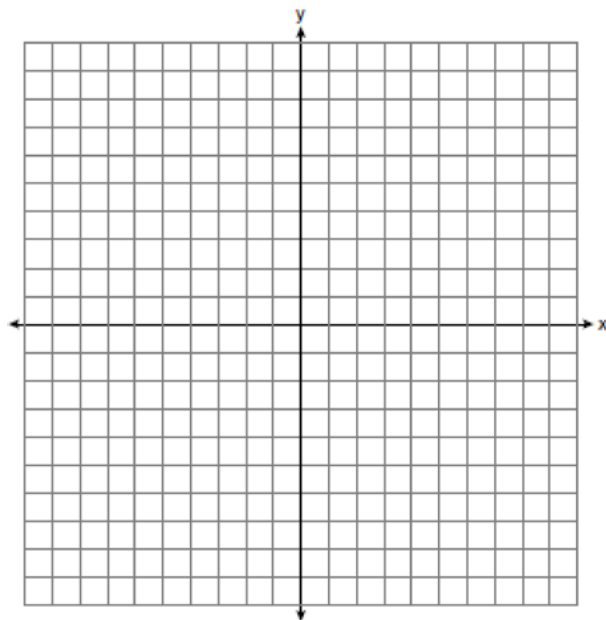
- 10 On the set of coordinate axes below, graph the locus of points that are equidistant from the lines $y = 6$ and $y = 2$ and also graph the locus of points that are 3 units from the y -axis. State the coordinates of *all* points that satisfy *both* conditions.



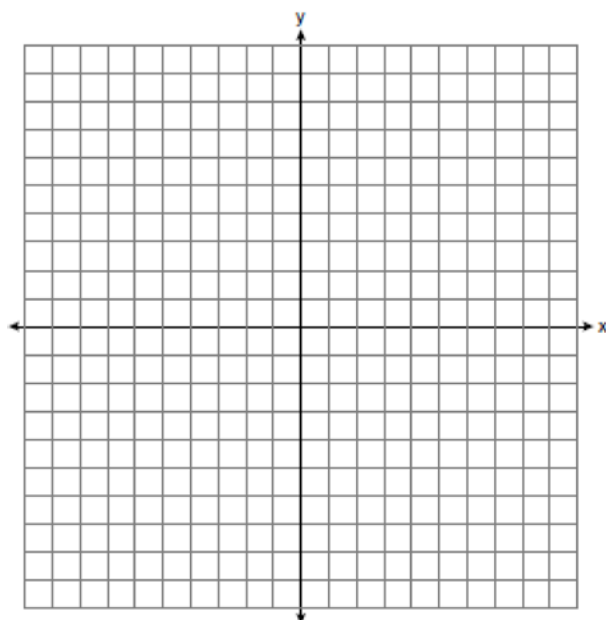
- 11 A city is planning to build a new park. The park must be equidistant from school A at $(3,3)$ and school B at $(3,-5)$. The park also must be exactly 5 miles from the center of town, which is located at the origin on the coordinate graph. Each unit on the graph represents 1 mile. On the set of axes below, sketch the compound loci and label with an **X** all possible locations for the new park.



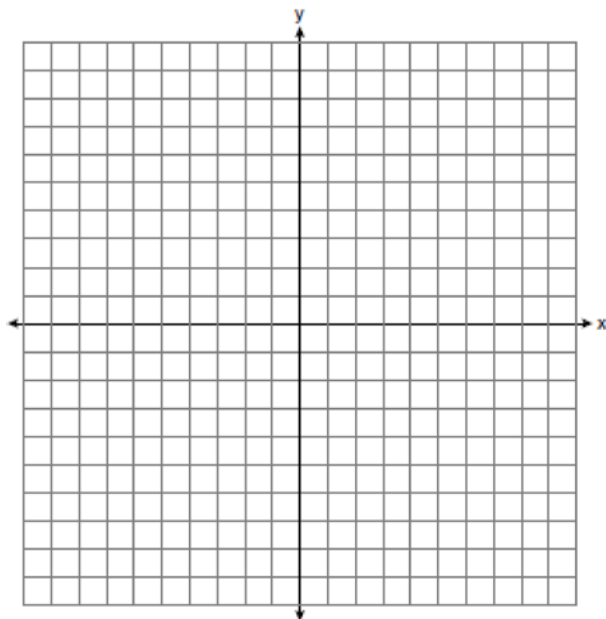
- 12 On the set of axes below, graph the locus of points that are 4 units from the line $x = 3$ and the locus of points that are 5 units from the point $(0,2)$. Label with an **X** all points that satisfy both conditions.



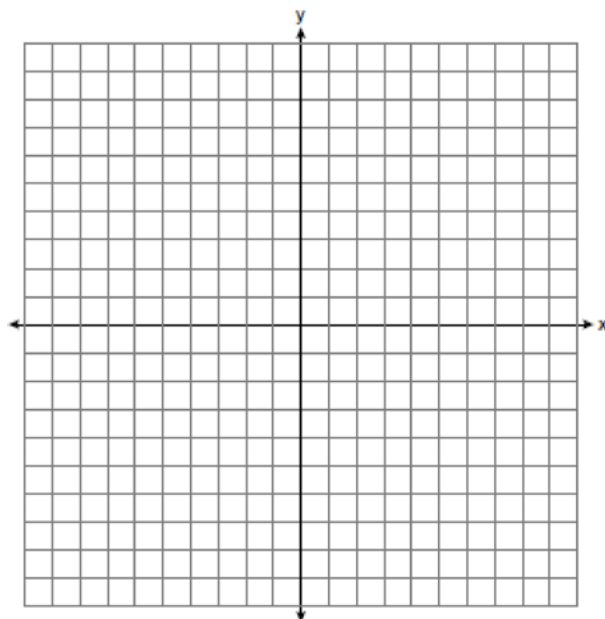
- 13 On the set of axes below, graph the locus of points 4 units from $(0,1)$ and the locus of points 3 units from the origin. Label with an **X** any points that satisfy *both* conditions.



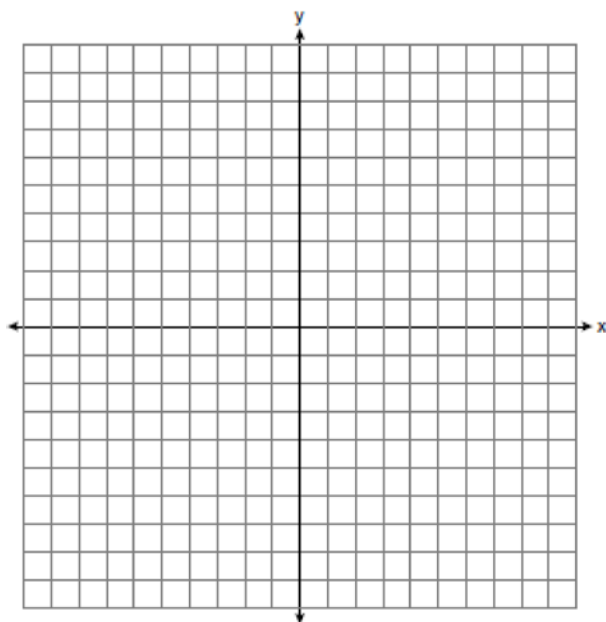
- 14 On the set of axes below, graph the locus of points 4 units from the x -axis and equidistant from the points whose coordinates are $(-2,0)$ and $(8,0)$. Mark with an **X** all points that satisfy *both* conditions.



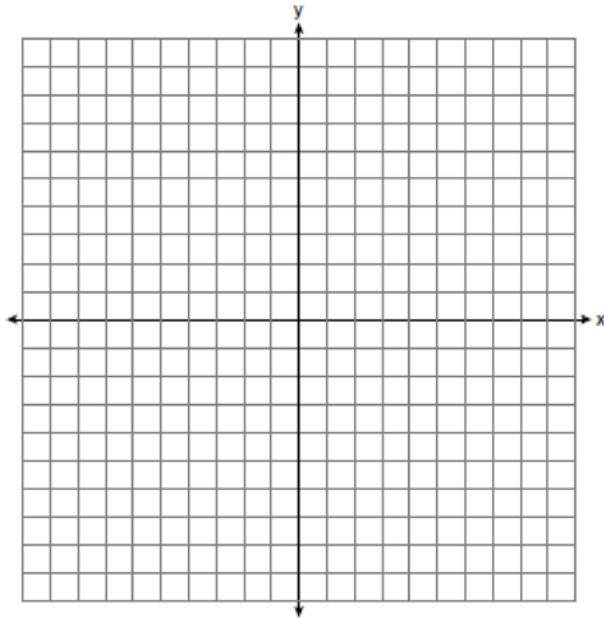
- 16 On the set of axes below, graph the locus of points 5 units from the point $(3,-2)$. On the same set of axes, graph the locus of points equidistant from the points $(0,-6)$ and $(2,-4)$. State the coordinates of all points that satisfy *both* conditions.



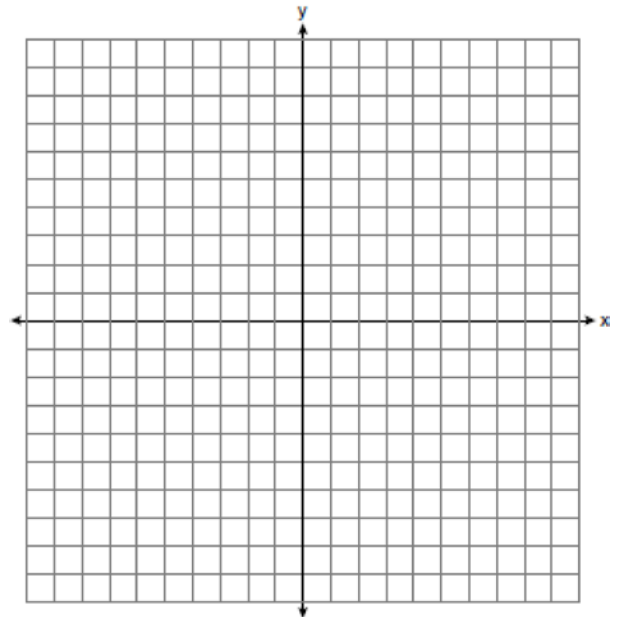
- 15 On the set of axes below, sketch the locus of points 2 units from the x -axis and sketch the locus of points 6 units from the point $(0,4)$. Label with an **X** all points that satisfy both conditions.



- 17 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.



- 18 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.



G.G.23: Locus: Graph and solve compound loci in the coordinate plane
Answer Section

1 ANS: 2 REF: 081316ge

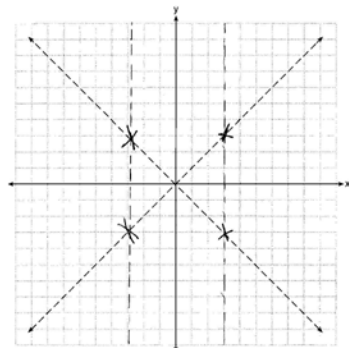
2 ANS: 4 REF: 060912ge

3 ANS: 2 REF: 081117ge

4 ANS: 4 REF: 080003a

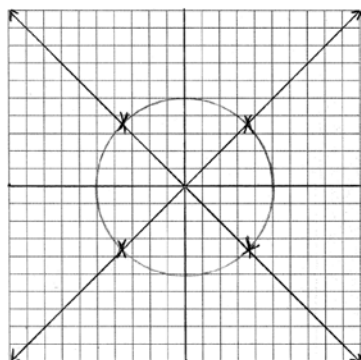
5 ANS: 4 REF: 011407ge

6 ANS:



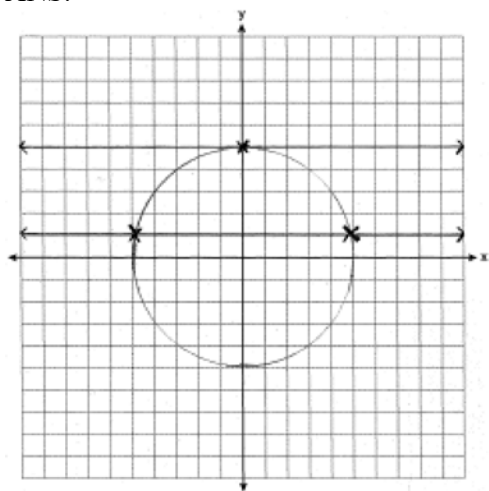
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7 ANS:



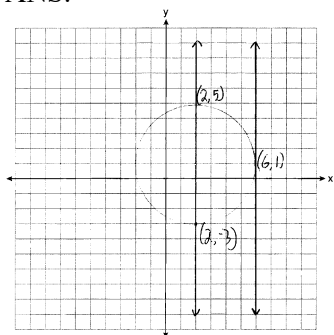
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8 ANS:



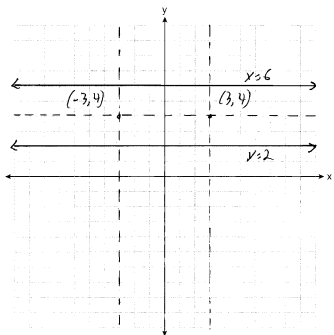
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9 ANS:



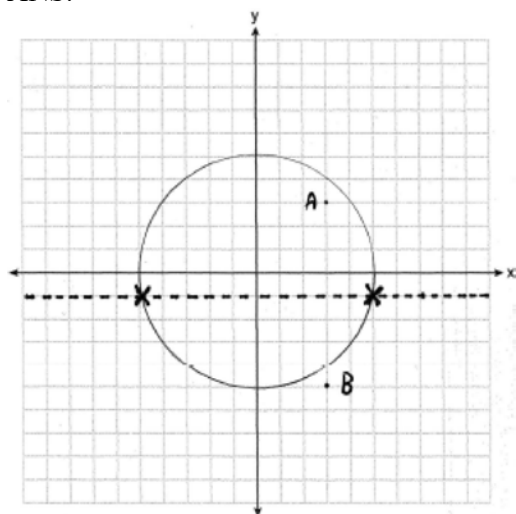
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10 ANS:



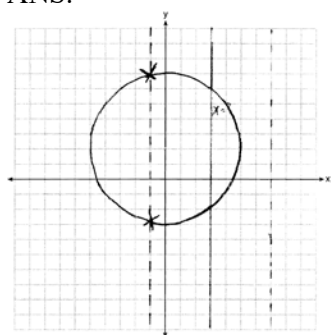
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11 ANS:



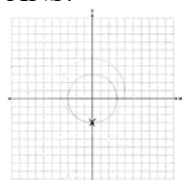
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12 ANS:



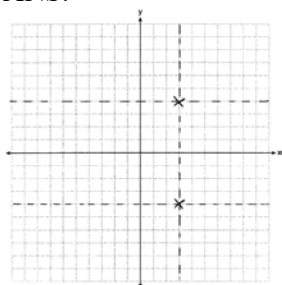
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13 ANS:



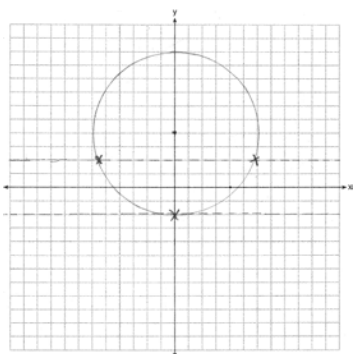
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14 ANS:



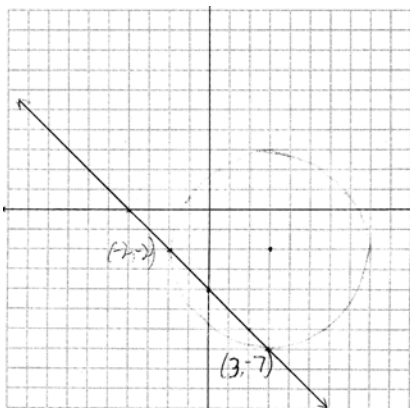
REF: 061333ge

15 ANS:



REF: 061436ge

16 ANS:



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

$$m_{\perp} = -1$$

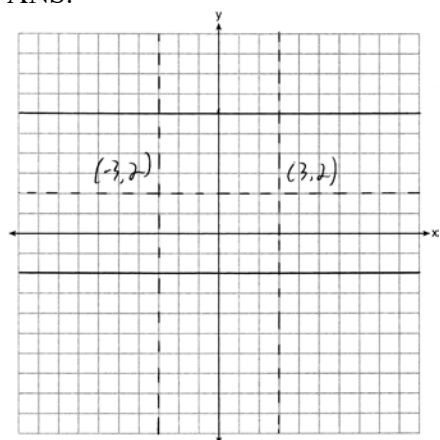
$$-5 = (-1)(1) + b$$

$$-4 = b$$

$$y = -x - 4$$

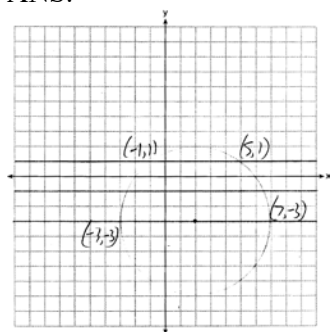
REF: 081438ge

17 ANS:



REF: 011536ge

18 ANS:



REF: 081535ge