

East Los Angeles College
Department of Mathematics
Math 125
Test 4 Study Guide

Graph the following solution set for these non-linear inequalities.

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|-------------------------|--------------------------------|
| 1. $x^2 - x - 12 > 0$ | 2. $\frac{x(x-5)}{x+4} \geq 0$ |
| 3. $x(x+4)(x-3) \leq 0$ | 4. $\frac{x+1}{x+6} < 1$ |

Let $f(x) = x^2 - 2x + 4$ and Let $g(x) = \sqrt{4x + 8}$

Determine the following:

- | | |
|----------------------|----------------------|
| 5. $f(-3)$ | 6. $f(0)$ |
| 7. $f(1)$ | 8. $f(t)$ |
| 9. $f(t - 1)$ | 10. $g(-2)$ |
| 11. $g(0)$ | 12. $g(2)$ |
| 13. $g(t)$ | 14. $g(3t + 1)$ |
| 15. $(f \circ g)(x)$ | 16. $(g \circ f)(x)$ |

Determine the inverse function for the following 1 to 1 functions.

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|----------------------------------|------------------------|
| 17. $f(x) = \sqrt{x-3}$ | 18. $f(x) = 3x - 8$ |
| 19. $f(x) = x^2 - 4$ for $x < 0$ | 20. $f(x) = (x + 2)^3$ |

Let $y = x^2 + 4x - 5$ and determine the following:

21. Complete the square to write in graphing form $y = a(x - h)^2 + k$
22. Vertex
23. Axis of symmetry
24. Opens up/down
25. x-intercepts, if any.
26. y-intercept.
27. Sketch the curve.

Let $y = -3x^2 + 12x + 6$ and determine the following:

28. Complete the square to write in graphing form $y = a(x - h)^2 + k$
 29. Vertex
 30. Axis of symmetry
 31. Opens up/down
 32. x-intercepts, if any.
 33. y-intercept.
 34. Sketch the curve.
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Let $x^2 - 4x + y^2 - 6y = -9$ and determine the following:

35. Complete the square and determine the conic section.
 36. What is the center of the circle?
 37. What is the radius of the circle?
 38. Sketch the curve.
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Let $\frac{(x+2)^2}{36} + \frac{(y-1)^2}{9} = 1$ and determine the following:

39. Determine the values of a.
 40. Determine the values of b.
 41. Sketch the curve.
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Let $\frac{(x+2)^2}{25} - \frac{(y-1)^2}{7} = 1$ and determine the following:

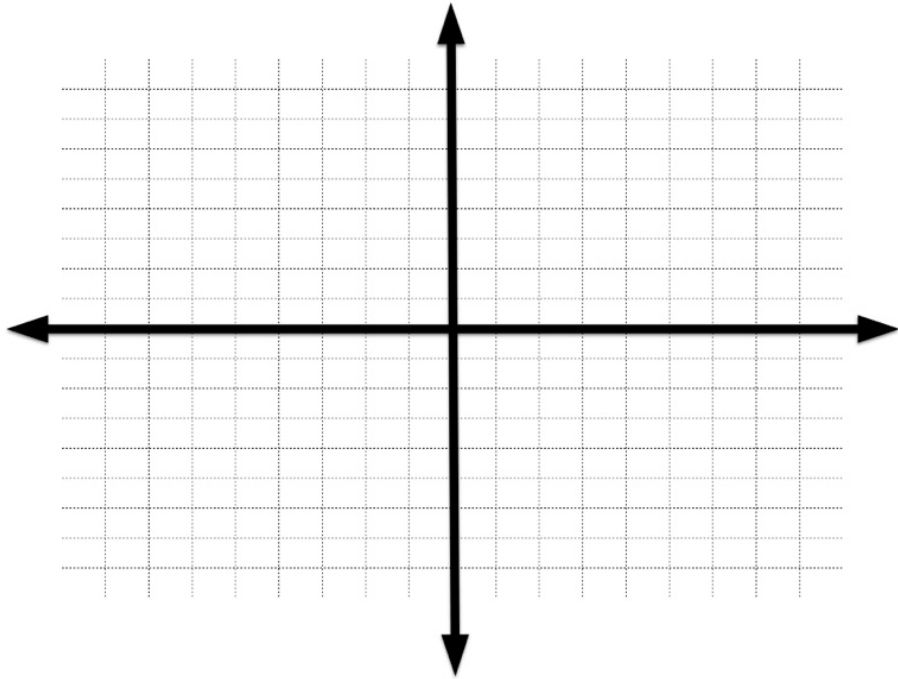
42. Determine the values of a.
43. Determine the values of b.
44. Sketch the curve.

Answer Sheet

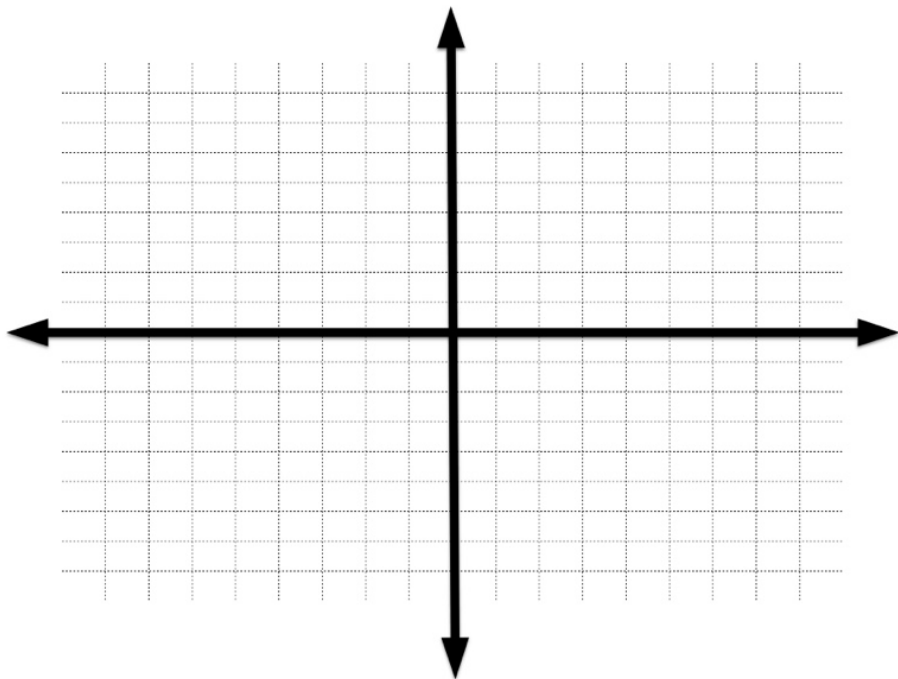
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Graph Paper

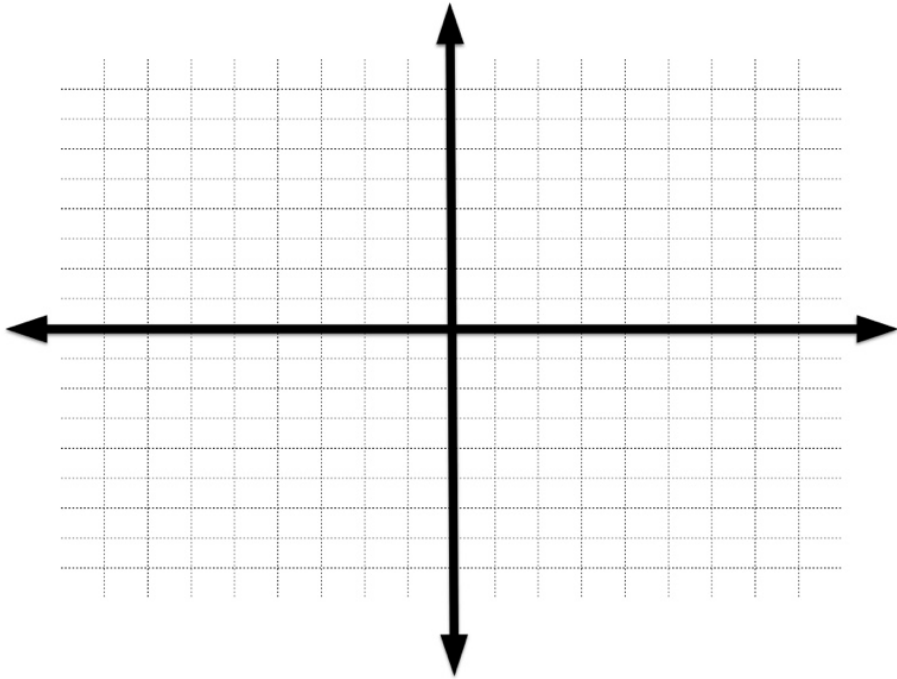
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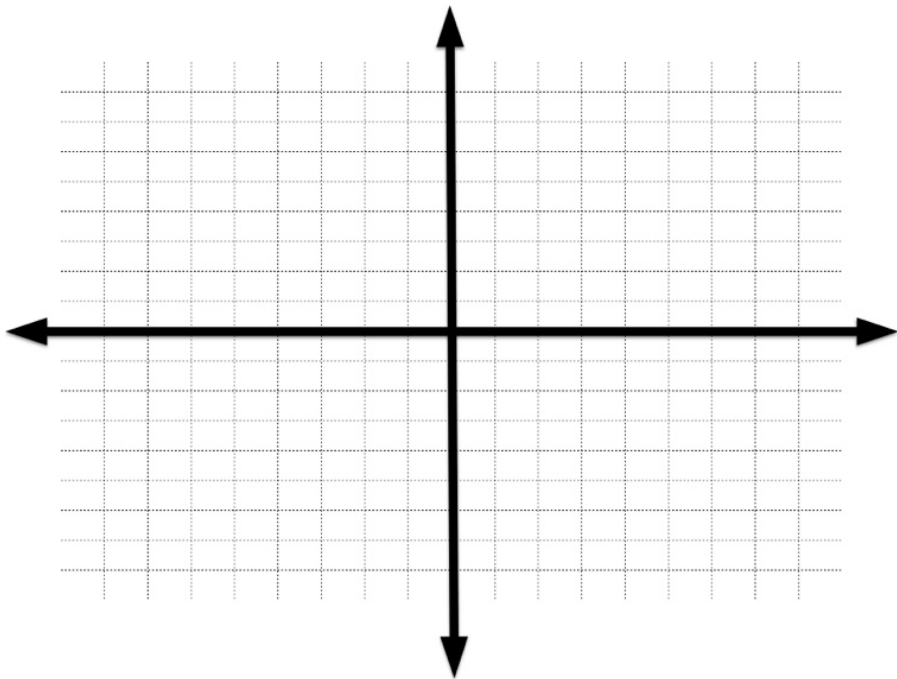
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38.



41.



44.

