

**East Los Angeles College**  
**Department of Mathematics**  
**Math 125**  
**Test 4**

**Show Your Work For Credit**

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

1.  $x^2 - x - 30 < 0$

2.  $\frac{x}{x-1} \geq 2$

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Let  $f(x) = x^2 + 3x - 1$  and  $g(x) = \sqrt{x - 5}$

Determine the following:

3.  $f(-3)$

4.  $f(0)$

5.  $f(1)$

6.  $f(t - 3)$

7.  $g(9)$

8.  $g(5)$

9.  $g(13)$

10.  $g(t + 1)$

11.  $(f \circ g)(x)$

12.  $(g \circ f)(x)$

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

13.  $f(x) = x^2 + 5$  for  $x < 0$

14.  $f(x) = x^3 - 5$

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

15. Complete the square to write in graphing form  $y = a(x - h)^2 + k$

16. Vertex

17. Axis of symmetry

18. Opens up/down

19. x-intercepts, if any.

20. y-intercept.

21. Sketch the curve.

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Let  $x^2 - 6x + y^2 + 4y = -4$  and determine the following:

22. Complete the square and determine the conic section.

23. What is the center of the circle?

24. What is the radius of the circle?

25. Sketch the curve.

Let  $\frac{(x-2)^2}{49} + \frac{(y+1)^2}{16} = 1$  and determine the following:

26. Determine the center of the conic section.
27. Determine the values of a.
28. Determine the values of b.
29. Sketch the curve.

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Let  $\frac{x^2}{9} - \frac{y^2}{2} = 1$  and determine the following:

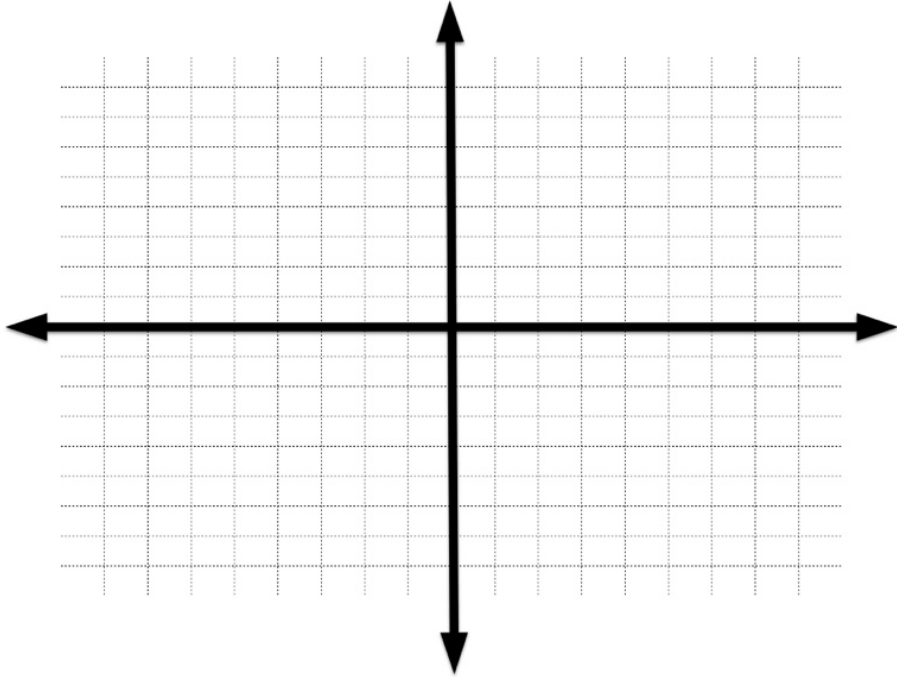
30. Determine the values of a.
31. Determine the values of b.
32. Sketch the curve.

### Answer Sheet

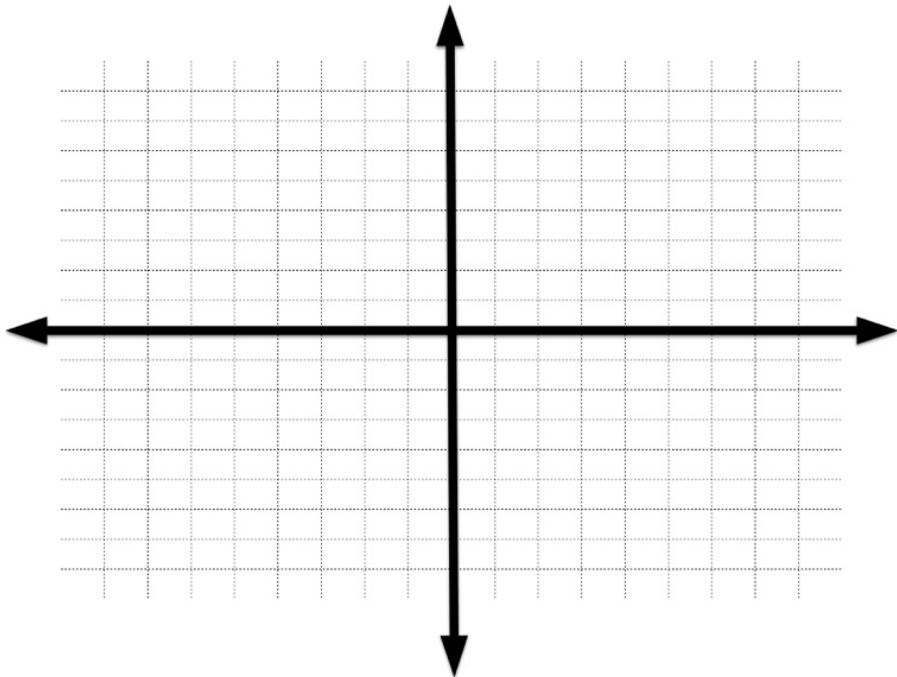
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Graph Paper

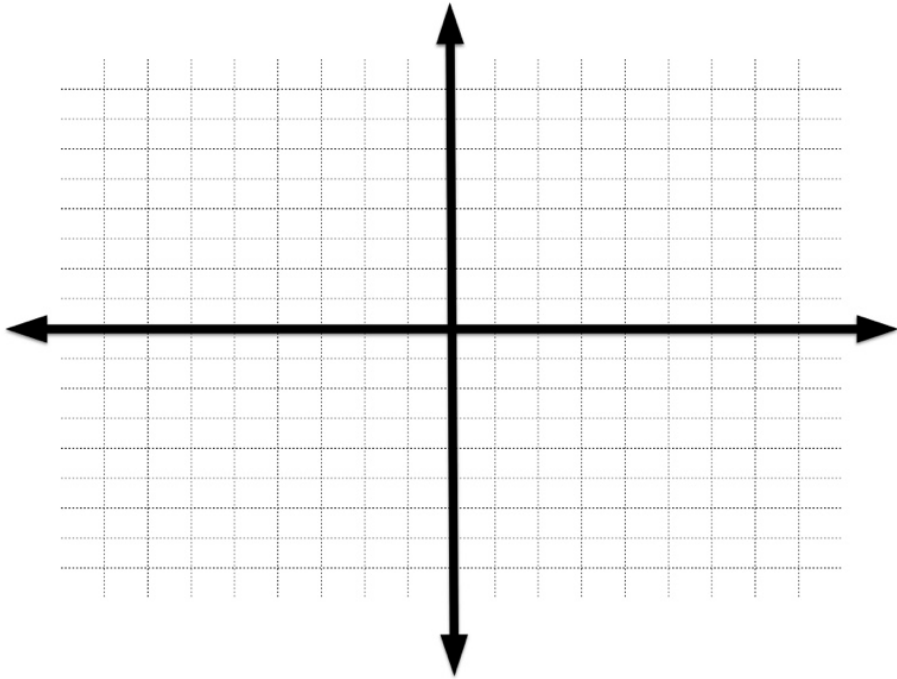
21.



25.



29.



32.

