Name_____Period_____Column_____

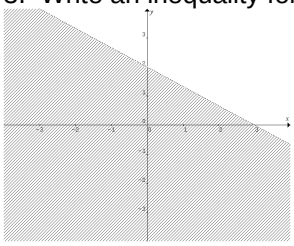
Algebra 2 Honors Tuneup #3 (chapters 1-3, 5, 6, 10)

Show work neatly.

1. Solve & graph: $|2x-5| \le 13$

2. Solve: $\frac{2}{3}(x+4) = \frac{1}{2}x - 2(x-10)$

3. Write an inequality for the graph shown.



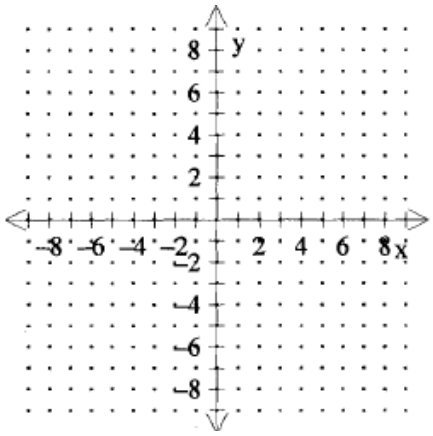
4. Factor completely: $(x^2-4)(16x^3-54)$

5. Graph the system:

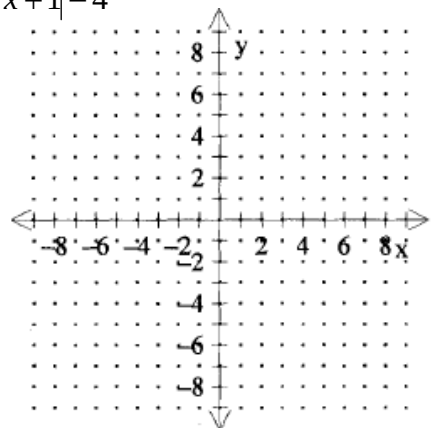
$x > 3$

$2x-3y < 6$

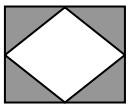
$\frac{3}{4}x+4 > y$



6. Graph $y = \frac{2}{3}|x+1| - 4$



7. In the figure shown below, the area between the two squares is 11 sq. in. The sum of the perimeters of the two squares is 44 in. Find the length of a side of the larger square.



8. Acme Light Hanging Co. charges a flat fee of $25 for the first 500 lights and $2.50 for each set of 100 lights thereafter. Mrs. B paid $90 for light hanging. Write a linear equation and find how many lights were hung.

9. If $A = 2 - 3i$ and $B = 4 + i$, find $\frac{A}{B}$.

10. Simplify: $\frac{\left(2x^3 y^{-2}\right)^4}{x^{-4} y^3}$

11. Which parabola is wider? Explain.

$y = 2x^2 + 3x + 5$

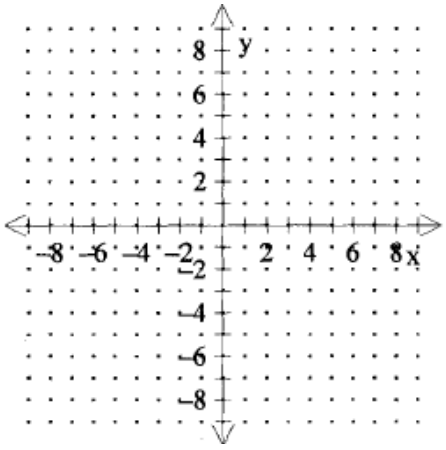
$y = \frac{-1}{2}x^2 + x + 1$

12. Determine the nature of the roots without solving:

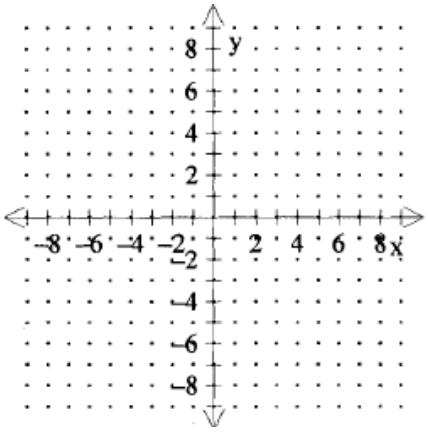
$5x^2 + 9x = -x^2 + 5x + 1$

13. Graph. Find and locate vertices and foci. Find the eccentricity.

$\frac{(x-3)^2}{9} + \frac{(y+1)^2}{25} = 1$



14. Find the zeros and graph: $y = 2x^2 + 4x - 6$



15. Find the distance between $(-5, 4)$ and $(10, -3)$. Then find the midpoint of the line segment connecting them.

16. Rewrite in standard form and state the type of conic: $4x^2 - 16y^2 - 8x - 64y - 76 = 0$