Pre Calculus **Name: _____**
Prerequisite Review **Block: _____**

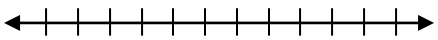
Calculator Allowed. Show all applicable work for full credit.

Use an inequality to describe:

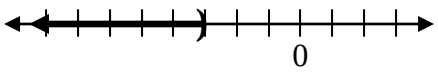
1. the interval $(-\infty, 3]$

2. "Olympic gymnasts are at least 14 years old."

3. Graph the interval $[-7, \infty)$



4. Use interval notation to describe the graph below.



Simplify. Express answers with only positive exponents.

5. $\dfrac{(xy^2)^3}{y^2x^3}$

6. $(4x^3y^{-5})^{-2}$

7. $\left(\dfrac{x^3y^{-2}}{12x^6y^{-5}}\right)\left(\dfrac{4x^2y^6}{x^{-4}y}\right)$

8. Write the equation of the line in point slope form through $(-1,-4)$ and $(3,2)$.

9. Write the equation of the line in slope intercept form through $(3,10)$ and parallel to $5x+6y=33$.

10. Write the equation of the line in general form through $(-3,2)$ and perpendicular to $-4x+2y=8$.

Solve each equation or inequality algebraically. Show all work!! Use interval notation where appropriate.

11. $2(3-4x)-5(2x+3)=x-17$

12. $\frac{x-2}{3}+\frac{x+5}{2}=\frac{1}{3}$

13. $\frac{x-4}{2}-2x\le 5(3-x)$

14. $-2<2x+4\le 7$

15. $|4x+1|=3$

16. $|2-3x|<11$

17. $2|3x+4|-7\ge -3$

18. $\frac{x-3}{x}+\frac{3}{x^2+x}=\frac{3}{x+1}$

Solve by factoring:

19. $6x^2+7x=3$

20. $12x^3-14x^2-6x=0$

21. Solve by extracting the square roots: $3(3x-1)^2=21$.

22. Solve by the quadratic formula: $4x^2=-10x-5$.

23. Solve by graphing: $4x^3-9x+2>0$.

24. Find the equation of a circle that has a center of (–6, 7) and a radius of 8.

25. Given the equation of the circle $(x-3)^2+(y+1)^2=10$, what is the center and radius?

26. Use the following 2 points: (8, 13) and (–2, 7)

    a) Find the midpoint.

    b) Find the distance between the two points.