Name:_____

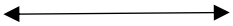
Period:_____

6.4 Simple Rational and Polynomial Inequalities

Solve the simple rational inequalities:

1) $\frac{1}{x-5} > 0$

2) $\frac{x-2}{x+4} > 0$

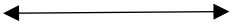


3) $\frac{2x+1}{x-3} \leq 0$

4) $\frac{4x-1}{x-5} > 0$

5) $\frac{5x-2}{x-4} < 0$

6) $\frac{3x-2}{4x+1} \geq 0$



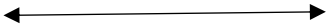
7) $\frac{x-2}{x+1} \geq 0$

8) $\frac{x-2}{3x-4} < 0$

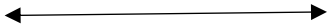
9) $\frac{x+1}{2x-3} \leq 0$

Solve the polynomial inequalities:

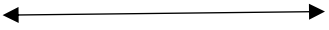
10) $(x + 7)(x + 6)(x + 2) > 0$



11) $(x + 10)(x + 1)(x – 3) < 0$



12) $(x + 4)(x^2 – 9) > 0$



Name:_____

Period:_____

13) $x^4 - 3x^3 - 120x^2 + 164x + 3360 \leq 0$

14) $2x^3 + 7x^2 - 77x - 40 > 0$

15) $\frac{x^2-2x-3}{x^2+11x+30} < 0$

16) $\frac{x^2(x-5)}{(x-4)^3} < 0$

What type of symmetry does the following functions have?

17. $f(x) = |x - 3|$

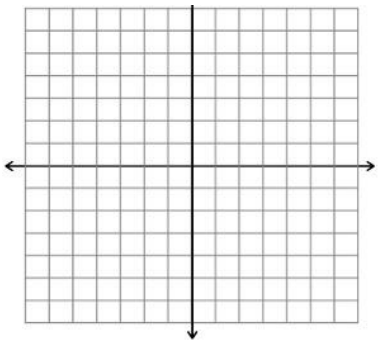
18. $f(x) = x^2 - 4$

19. $f(x) = \frac{1}{2}x^3$

20. If $f(x) = x^2$ and $g(x) = f(x + 2) - 4$, what are the coordinates of the vertex of function g?

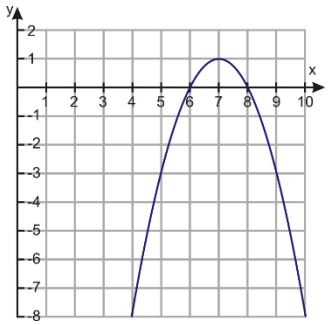
21. Graph the piecewise function:

$$f(x) = \begin{cases} x^2 + 1 & x \leq -1 \\ x & x > -1 \end{cases}$$



22. Write the equation for the parabola with intercepts at (3, 0) and (-2, 0) and passes through the point (2, 4).

23. Write an equation for the graph shown in vertex form.



24. Solve $A = \pi r^2$ for r.