Algebra 2
#TB – Throwback

Name: _____

Date: _____ Period: _____

Factor Completely.

1.) $4x^3 - 12x^2 - 7x$

2.) $27x^6 - 16y^3$

3.) $81x^4 - 16$

4.) $4x^4 - 16x^3 + 16x^2 - 64x$

5.) $10x^2 + 17x - 6$

6.) $64x^3 + 125y^3$

Simplify.

7.) $(2x^{-3}y^2z)^{-2}(10x^2y^{-3}z)$

8.) $\left(\frac{6x^3y^{-4}z^2}{8x^{-2}y^2z^{-2}}\right)^2$

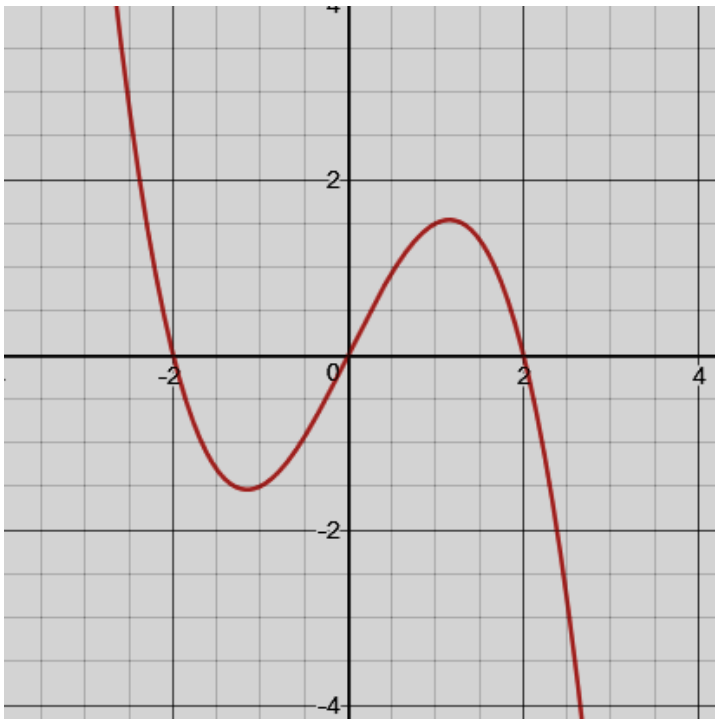
9.) $\frac{12x^2y^{-3}z^4}{30x^{-5}y^5z}$

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

11.) $(-4x^3y^{-2}z^4)(6x^{-5}y^{-3}z^8)$

12.) $(100x^{-12}y^{23}z^{-18})^0$

13.) Using the graph below, please identify the following:



Domain: _____

Range: _____

Increasing: _____

Decreasing: _____

End Behavior:
$as\ x \to \infty, f(x) \to$ _____

$as\ x \to -\infty, f(x) \to$ _____

x-intercept(s): _____

y-intercept(s): _____

14.) Write a new function, $g(x)$, given the following transformations to $f(x) = x^3$:

- Reflection over the x-axis.
- Vertical shrink of $\frac{1}{3}$.
- Horizontal shift of right 4.
- Vertical shift of up 2

_____

15.) Write an equation of a line in slope-intercept form that is perpendicular to $2y - 3x = 4$ and passes through the point $(6, -4)$.

16.) Write an equation of a line in slope-intercept form that is parallel to $(2, -3)$ and $(4, 3)$ and passes through the point $(5, -3)$.