Name: _____

Date: _____ Per: _____

Assessment 3

IM2 – F.IF.4: Key Characteristics of Graphs (Pre)

F.IF.4 – Key characteristics of functions, with a focus on domain, intervals of increase / decrease, range, minima / maxima, symmetry, and intercepts.

Grading		Skill Mastery	
➢ 4	(AM) Advanced Mastery	➢ _____	F.IF.4 Domain, Intervals of Increase & Decrease
➢ 3	(M) Mastery	➢ _____	F.IF.4 Absolute Minimums / Maximums, Symmetry, Intercepts, Zeros, & Roots
➢ 2	(IM) Initial Mastery	➢ _____	N.RN.2 Rational Exponents & Radicals (Re-assess)
➢ 1	(NYM) Not Yet Mastered		

Rubric

(F.IF.4) I can…

- write the domain & intervals of increase / decrease of a graph.
- determine if the graph has an absolute minimum / maximum of a graph, and write the coordinate.
- write the coordinate for the y-intercept of a graph.
- write the equation for the axis of symmetry.
- write the roots, zeros, and x-intercepts.

(N.RN.2) I can

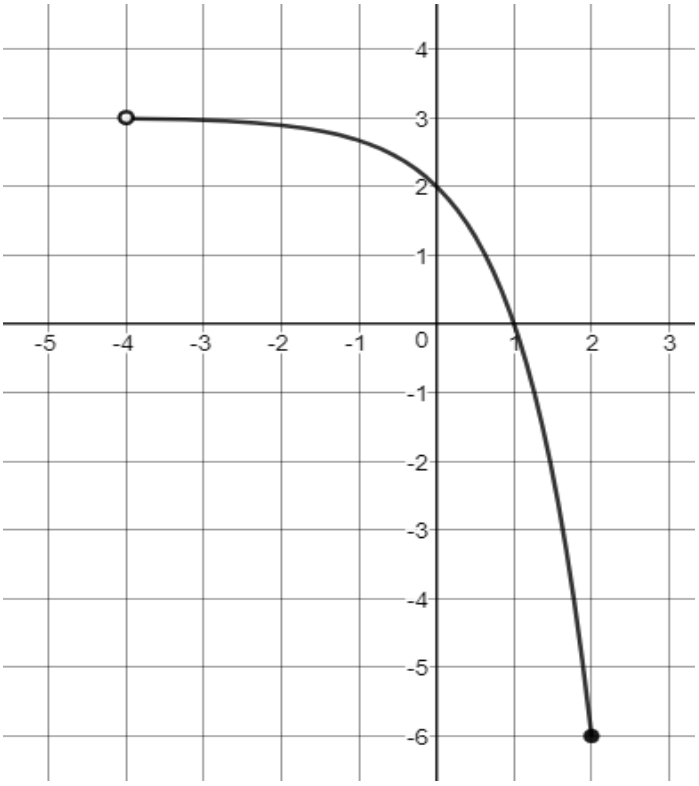
- write equivalent forms of rational exponents as radicals.
- write equivalent forms of radicals as rational exponents.

Pre-Assessment Planning

- What do you feel is your current level of mastery? AM, M, IM, or NYM.
- What specific steps will you take to study & prepare for this assessment?

1. _____
2. _____
3. _____

1. Identify the key characteristics of the graph below.



Fill in the Blanks using Inequality Notation

a) Domain: _____

- Interval of Increase:

  _____

- Interval of Decrease:

  _____

Determine the following Key Characteristics

b) Circle: Minimum, Maximum, or N/A

- Coordinate: _____ or N/A

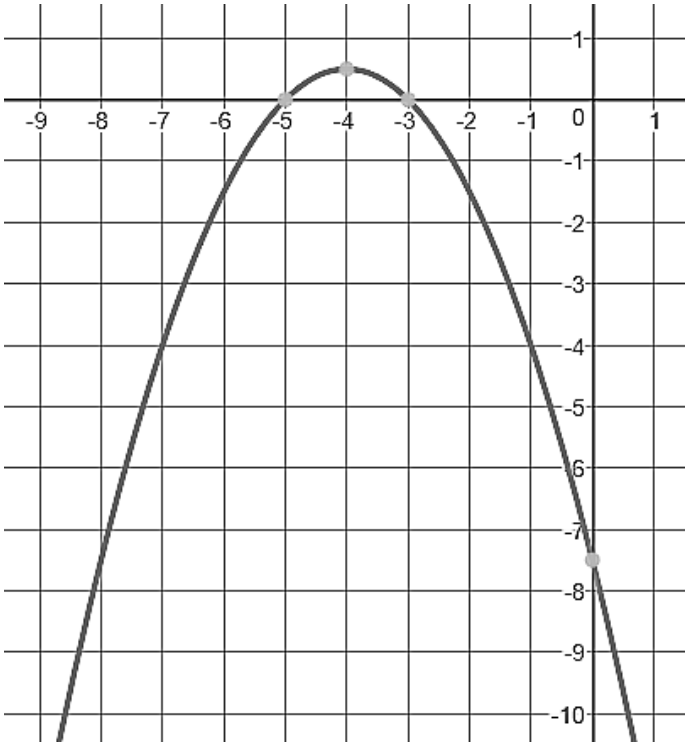
c) x-intercept(s): _____

d) Zero(s): _____

e) Root(s): _____

g) y-intercept: _____

2. Identify the key characteristics of the graph below.



Fill in the Blanks using Inequality Notation

a) Domain: _____

- Interval of Increase:

  _____

- Interval of Decrease:

  _____

Determine the following Key Characteristics

b) Circle: Minimum, Maximum, or N/A

- Coordinate: _____ or N/A

c) x-intercept(s): _____

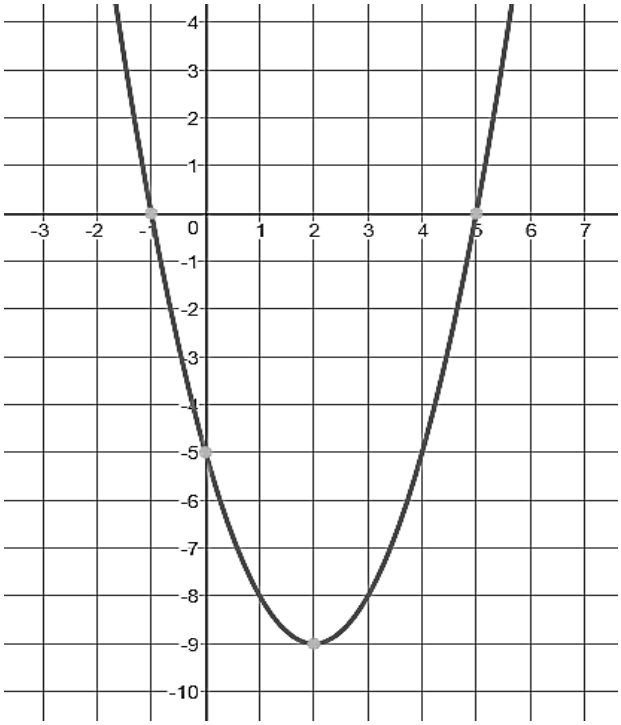
d) Zero(s): _____

e) Root(s): _____

g) y-intercept: _____

h) Axis of Symmetry: x = _____

3. Identify the key characteristics of the graph below.



Fill in the Blanks using Inequality Notation

a) Domain: _____

- Interval of Increase: _____
- Interval of Decrease: _____

Determine the following Key Characteristics

b) Circle: Minimum, Maximum, or N/A
   - Coordinate: _____ or N/A

c) x-intercept(s): _____

d) Zero(s): _____

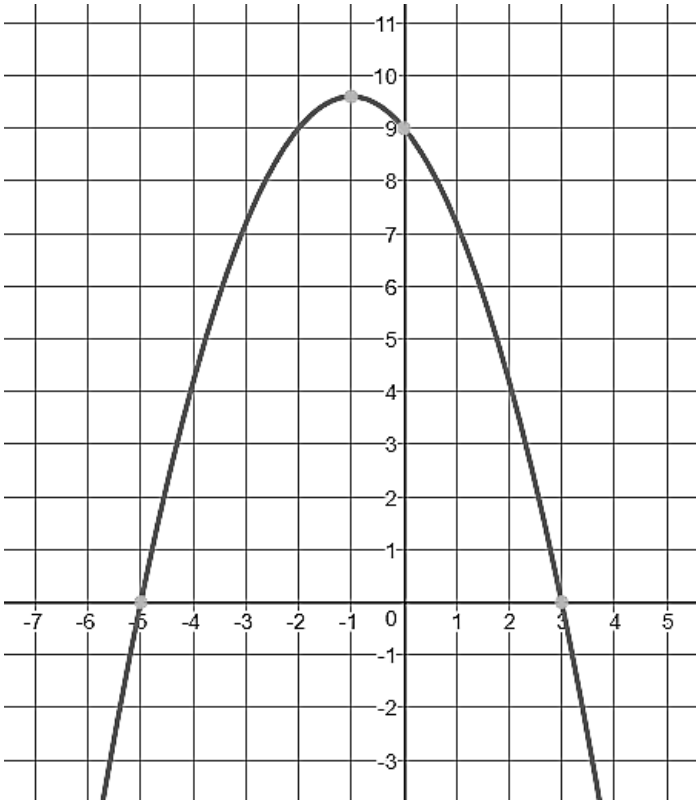
e) Root(s): _____

g) y-intercept: _____

h) Axis of Symmetry: x = _____

Directions – (F.IF.4) *Error Analysis: Kevin determined the key characteristics of the following graph. Circle all of his mistakes. Then, correct the errors.*

4.



Fill in the Blanks using Inequality Notation

a) Domain: $-5 \leq x \leq 3$
   - Interval of Increase: $-\infty < x < 9.6$
   - Interval of Decrease: $9.6 < x < \infty$

Determine the following Key Characteristics

b) Circle: Minimum, (Maximum,) or N/A
   - Coordinate: $(9.6, 0)$ or N/A

c) x-intercept(s): $(0, -5)\ and\ (0, 3)$

d) Zero(s): $x = -5\ and\ x = 3$

e) Root(s): $-5,\ 3,\ and\ 9$

g) y-intercept: $(9, 0)$

h) Axis of Symmetry: y = -1

Directions – (N.RN.2) *Select an expression that is equivalent to each radical below. You MUST show work.*

5. $\sqrt[5]{16^3}$

   a. $16^{\frac{5}{3}}$

   b. $2^{\frac{12}{5}}$

   c. $2^{\frac{5}{12}}$

   d. $(4^2)^{\frac{5}{3}}$

6. $\sqrt[3]{25^2}$

   a. $(5^2)^{\frac{3}{2}}$

   b. $5^{\frac{4}{3}}$

   c. $2\sqrt[3]{5}$

   d. $25^{\frac{3}{2}}$

Directions – (N.RN.2) *Rewrite the following rational exponent as a single radical expression (use quotient rule), then write at least 2 more equivalent forms.*

7. $\dfrac{9^{\frac{9}{5}}}{9^{\frac{3}{5}}}$

Directions – (N.RN.2) *Error Analysis: Dora simplified the following expression. Circle the first mistake she made. Then, correct the error.*

8. Given $\left(\sqrt[8]{27}\right)^4$

   Step 1 $27^{\frac{4}{8}}$

   Step 2 $(3^9)^{\frac{4}{8}}$

   Step 3 $3^{\frac{36}{8}}$

   Step 4 $3^{\frac{9}{2}} = \left(\sqrt{3}\right)^9$ Done!