**Math 161 Reality Check 5**  
**Name:**

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**Response Grid** (Check the appropriate boxes thus: [X])

<table>
<thead>
<tr>
<th>Question</th>
<th>a</th>
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After having read the chapter pencil in hand and done this Reality Check,

**i.** What would you say the idea of the chapter is:

**ii.** What questions do you have:

- 
- 
-
**Math 161 Reality Check 5**

**Name:**

**Rck 5-1.** Let the function \( f \) be specified by the global input-output rule:

\[
x \xrightarrow{f} f(x) = -103.28x^8
\]

given inputs that are \(+\text{large}\), what is the sign-size of the outputs.

**Your Work:**

i. You must make your case for whatever statement you are making.

ii. Circle which of the following choices corresponds to your result.

   a. \(+\text{large}\)
   b. \(-\text{large}\)
   c. \(+\text{small}\)
   d. \(-\text{small}\)
   
   e. None of the preceding

iii. Check the corresponding box in the **Response Grid** on the front page thus: ☑

**Rck 5-2.** Let \( f \) be the function specified by the global input-output rule:

\[
x \xrightarrow{f} f(x) = +45.94x^{-7}
\]

given inputs that are \(-\text{large}\), find the sign-size of the outputs

**Your Work:**

i. You must make your case for whatever statement you are making.
ii. Circle which of the following choices corresponds to your result.

- a. +large
- b. −large
- c. +small
- d. −small
- e. None of the preceding

iii. Check the corresponding box in the Response Grid on the front page thus: [X]

Rek 5-3. Let \( f \) be the function specified by the global input-output rule
\[
\begin{align*}
x \xrightarrow{f} f(x) &= (+45.94)x^7 \\
\end{align*}
\]
given inputs that are −small, what is the sign-size of the outputs.

Your Work:

i. You must make your case for whatever statement you are making.

ii. Circle which of the following choices corresponds to your result.

- a. +large
- b. −large
- c. +small
- d. −small
- e. None of the preceding

iii. Check the corresponding box in the Response Grid on the front page thus: [X]

Rek 5-4. Let \( f \) be the function specified by the global input-output rule
\[
\begin{align*}
x \xrightarrow{f} f(x) &= −103.28x^8 \\
\end{align*}
\]
and given inputs that are −small, find the sign-size of the outputs of \( f \).

Your Work:

i. You must make your case for whatever statement you are making.
ii. Circle which of the following choices corresponds to your result.

a. +large  
b. −large  
c. +small  
d. −small  
e. None of the preceding

iii. Check the corresponding box in the **Response Grid** on the front page thus: ☒

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**Rck 5-5.** Let \( f \) be the function specified by the global input-output rule

\[
x \rightarrow f(x) = +71.65x^{-6}
\]

find the **place** of the local graph of \( f \) for inputs that are −large.

**Your Work:**

i. You must make your case for whatever statement you are making.

ii. Circle which of the following choices corresponds to your result.

a.  
b.  
c.  
d.  
e. None of the preceding
iii. Check the corresponding box in the **Response Grid** on the front page thus: \( \Box \).

Rec 5-6. Let \( f \) be the function specified by the global input-output rule

\[
x \xrightarrow{f} f(x) = +82.47x^7
\]

find the *place* of the local graph for inputs that are *small*.

**Your Work:**

i. You must make your case for whatever statement you are making.

ii. Circle which of the following choices corresponds to your result.

- a. 
  - b. 
  - c. 
  - d. 
  - e. None of the preceding

iii. Check the corresponding box in the **Response Grid** on the front page thus: \( \Box \).

Rec 5-7. Let \( f \) be the function specified by the global input-output rule

\[
x \xrightarrow{f} f(x) = -52.18x^5
\]

what is its local graph near *\( +\infty \)*

**Your Work:**

i. You must make your case for whatever statement you are making.
ii. Circle which of the following choices corresponds to your result.

a.  

b.  

c.  

d.  

e. None of the preceding

iii. Check the corresponding box in the Response Grid on the front page thus: ☒

Rck 5-8. Let $f$ be the function specified by the global input-output rule

$$ x \xrightarrow{f} f(x) = -71.22x^{-3} $$

find the local graph of $f$ near $+\infty$.

Your Work:

i. You must make your case for whatever statement you are making.

ii. Circle which of the following choices corresponds to your result.
iii. Check the corresponding box in the Response Grid on the front page thus: ✗.

Reck 5-9. Let \( f \) be the function specified by the global input-output rule
\[
\begin{align*}
x & \mapsto f(x) = 33.65x + 5
\end{align*}
\]
what is Local graph \( f \big|_{\text{near } 0} \)?

Your Work:

i. You must make your case for whatever statement you are making.

ii. Circle which of the following choices corresponds to your result.

\[
\begin{array}{cccc}
a. & b. & c. & d. \\
& & & \\
\end{array}
\]
e. None of the preceding

iii. Check the corresponding box in the Response Grid on the front page thus: ✗.

Reck 5-10. Let \( f \) be the function specified by the global input-output rule
\[
\begin{align*}
x & \mapsto f(x) = 33.65x^{-5}
\end{align*}
\]
find the local graph of \( f \) near \( 0^- \).

**Your Work:**

i. You must make your case for whatever statement you are making.

ii. Circle which of the following choices corresponds to your result.

\[
\begin{array}{c|c|c|c|c}
\text{Output} & \text{Ruler} & \text{Input} & \text{Ruler} \\
\hline
\text{Screen} & \text{Offscreen} & 0 & 0 \\
\end{array}
\]

a. 

\[
\begin{array}{c|c|c|c|c}
\text{Output} & \text{Ruler} & \text{Input} & \text{Ruler} \\
\hline
\text{Screen} & \text{Offscreen} & 0 & 0 \\
\end{array}
\]

b. 

c. 

d. 

e. None of the preceding

iii. Check the corresponding box in the **Response Grid** on the front page thus: 

\[
\begin{array}{c|c|c|c|c}
\text{Output} & \text{Ruler} & \text{Input} & \text{Ruler} \\
\hline
\text{Screen} & \text{Offscreen} & 0 & 0 \\
\end{array}
\]

**Rck 5-11.** Let \( f \) be the function specified by the global input-output rule 

\[
x \xrightarrow{f} f(x) = +28.13x^{-3}
\]

find the local graph of \( f \) near \(-\infty\).

**Your Work:**

i. You must make your case for whatever statement you are making.
ii. Circle which of the following choices corresponds to your result.

![Diagram](image1)

a.  

b.  

c.  

d.  

e. None of the preceding

iii. Check the corresponding box in the **Response Grid** on the front page thus: [X]

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**Rck 5-12.** Let $f$ be the function specified by the global input-output rule

$$x \xrightarrow{f} f(x) = -72.81x^4$$

find the local graph of $f$ near $0^-$. 

**Your Work:**

i. You must make your case for whatever statement you are making.

---

ii. Circle which of the following choices corresponds to your result.

![Diagram](image2)

a.  

b.  

c.  

d.  

e. None of the preceding

iii. Check the corresponding box in the **Response Grid** on the front page thus: [X]
Res. 5-13. Let $f$ be the function specified by the global input-output rule

\[ x \xrightarrow{f} f(x) = -84.29x^{-4} \]

find Height-sign $f \big|_{\text{near } \infty}$

Your Work:

i. You must make your case for whatever statement you are making.

ii. Circle which of the following choices corresponds to your result.

   a. Height-sign $LIA \big|_{\text{near } \infty} = (+, +)$
   b. Height-sign $LIA \big|_{\text{near } \infty} = (+, -)$
   c. Height-sign $LIA \big|_{\text{near } \infty} = (-, +)$
   d. Height-sign $LIA \big|_{\text{near } \infty} = (-, -)$
   e. None of the preceding

iii. Check the corresponding box in the **Response Grid** on the front page thus: [X]

Res. 5-14. Let $f$ be the function specified by the global input-output rule

\[ x \xrightarrow{f} f(x) = -84.29x^{+9} \]

what is Height-sign $f \big|_{\text{near } 0}$

Your Work:

i. You must make your case for whatever statement you are making.
ii. Circle which of the following choices corresponds to your result.

a. Height-sign $f|_{\text{near }0} = (+, +)$

b. Height-sign $f|_{\text{near }0} = (+, -)$

c. Height-sign $f|_{\text{near }0} = (-, +)$

d. Height-sign $f|_{\text{near }0} = (-, -)$

e. None of the preceding

iii. Check the corresponding box in the Response Grid on the front page thus: $\Box$.

\textit{Rck 5-15.} Let $f$ be the function specified by the global input-output rule

\[ x \xrightarrow{f} f(x) = +18.98x^6 \]

what is Slope-sign $f|_{\text{near }\infty}$

\textbf{Your Work:}

i. You must make your case for whatever statement you are making.

ii. Circle which of the following choices corresponds to your result.

a. Slope-sign $f|_{\text{near }\infty} = (\leftarrow, \leftarrow)$

b. Slope-sign $f|_{\text{near }\infty} = (\leftarrow, \rightarrow)$

c. Slope-sign $f|_{\text{near }\infty} = (\rightarrow, \leftarrow)$

d. Slope-sign $f|_{\text{near }\infty} = (\rightarrow, \rightarrow)$

e. None of the preceding

iii. Check the corresponding box in the Response Grid on the front page thus: $\Box$.

\textit{Rck 5-16.} Let $f$ be the function specified by the global input-output rule

\[ x \xrightarrow{f} f(x) = +44.55x^{-7} \]

what is Slope-sign $f|_{\text{near }0}$

\textbf{Your Work:}

i. You must make your case for whatever statement you are making.
ii. Circle which of the following choices corresponds to your result.

a. Slope-sign $f_{|_{0}} = (\nearrow, \nearrow)$  
   b. Slope-sign $f_{|_{0}} = (\nearrow, \nwarrow)$  
   c. Slope-sign $f_{|_{0}} = (\swarrow, \nearrow)$  
   d. Slope-sign $f_{|_{0}} = (\swarrow, \nwarrow)$  
   e. None of the preceding

iii. Check the corresponding box in the Response Grid on the front page thus: ☑️

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**Rk 5-17.** Let $f$ be the function specified by the global input-output rule

$x \xrightarrow{f} f(x) = -18.81x^5$

what is Concavity-sign $f|_{\infty}$

**Your Work:**
i. You must make your case for whatever statement you are making.

---

ii. Circle which of the following choices corresponds to your result.

a. Concavity-sign $f|_{\infty} = (\cup, \cup)$  
   b. Concavity-sign $f|_{\infty} = (\cup, \cap)$  
   c. Concavity-sign $f|_{\infty} = (\cap, \cup)$  
   d. Concavity-sign $f|_{\infty} = (\cap, \cap)$  
   e. None of the preceding

iii. Check the corresponding box in the Response Grid on the front page thus: ☑️
Let $f$ be the function specified by the global input-output rule

$$x \xrightarrow{f} f(x) = +22.07x^{-2}$$

what is Concavity-sign $f|_{\text{near } 0}$

<table>
<thead>
<tr>
<th>Your Work:</th>
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<tbody>
<tr>
<td>i. You must make your case for whatever statement you are making.</td>
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<th>ii. Circle which of the following choices corresponds to your result.</th>
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<td>a. Concavity-sign $f</td>
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<td>d. Concavity-sign $f</td>
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<td>e. None of the preceding</td>
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| iii. Check the corresponding box in the Response Grid on the front page thus: |
| X |