

MATH 161 HOMEWORK 13 NAME: \_\_\_\_\_

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[ Run: 08/24/2010 at 17:30. Seed: 6477. Order of Checkable Items: List.]

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**Response Grid:**

Question	a	b	c	d	e
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					

**13-1.** Let  $f$  be the function specified by the global input-output rule

$$x \xrightarrow{f} f(x) = -47.18x^3 + 30.67x^2 - 29.04x + 13.52$$

find its local input-output rule near  $\infty$

**Your Work:**

i. Explain your reasoning in getting your result.


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

- a.  $+13.52+[\dots]$       b.  $-47.18x^3+30.67x^2-29.04x+[\dots]$       c.  $-47.18x^3+[\dots]$       d.  $+1-29.04x+[\dots]$   
 e. None of the preceding

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

**13-2.** Let the function  $f$  be specified by the global input-output rule

$$x \xrightarrow{f} f(x) = -45.97x^3 + 13.87x^2 - 24.36x + 16.73$$

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

**Your Work:**

i. Explain your reasoning in getting your result.


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

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

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

**13-3.** Let the function  $f$  be specified by the global input-output rule

$$x \xrightarrow{f} f(x) = -40.47x^3 + 53.84x^2 - 28.36x + 48.03$$

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

**Your Work:**

i. Explain your reasoning in getting your result.

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

- a. Slope-sign  $f|_{\text{near } \infty} = (\swarrow, \swarrow)$       b. Slope-sign  $f|_{\text{near } \infty} = (\swarrow, \searrow)$   
 c. Slope-sign  $f|_{\text{near } \infty} = (\searrow, \swarrow)$       d. Slope-sign  $f|_{\text{near } \infty} = (\searrow, \searrow)$   
 e. None of the preceding

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

**13-4.** Let the function  $f$  be specified by the global input-output rule

$$x \xrightarrow{f} f(x) = -51.37x^3 + 32.57x^2 - 27.06x + 15.33$$

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

**Your Work:**

i. Explain your reasoning in getting your result.

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

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

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

**13-5.** Let the function  $f$  be specified by the global input-output rule

$$x \xrightarrow{f} f(x) = -4x^3 + 3x^2 - 2x + 1$$

find its local input-output rule for inputs near  $x_0 = -5$

**Your Work:**

i. Explain your reasoning in getting your result.

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

- a.  $h \xrightarrow{f_{-5}} f_{-5}(h) = +586 - 332h + 63h^2 - 4h^3$       b.  $h \xrightarrow{f_{-5}} f_{-5}(h) = -125 + 75h - 15h^2 + h^3$   
 c.  $h \xrightarrow{f_{-5}} f_{-5}(h) = -104 + 66h - 14h^2 + h^3$       d.  $h \xrightarrow{f_{-5}} f_{-5}(h) = 1 - 2h + 3h^2 - 4h^3$   
 e. None of the preceding

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

**13-6.** Let the function  $f$  be specified by the global input-output rule

$$x \xrightarrow{f} f(x) = +2x^3 + 7x^2 - 16x - 5$$

What is Height-sign  $f|_{\text{near } -5}$

**Your Work:**

i. Explain your reasoning in getting your result.

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

a. Height-sign  $f|_{\text{near } -5} = (+, +)$

b. Height-sign  $f|_{\text{near } -5} = (+, -)$

c. Height-sign  $f|_{\text{near } -5} = (-, +)$

d. Height-sign  $f|_{\text{near } -5} = (-, -)$

e. None of the preceding

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

**13-7.** Let the function  $f$  be specified by the global input-output rule

$$x \xrightarrow{f} f(x) = +2x^3 - 3x^2 - 72x - 18$$

What is Slope-sign  $f|_{\text{near } +4}$

**Your Work:**

i. Explain your reasoning in getting your result.

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

- a. Slope-sign  $f|_{\text{near } +4} = (\swarrow, \swarrow)$       b. Slope-sign  $f|_{\text{near } +4} = (\swarrow, \searrow)$   
 c. Slope-sign  $f|_{\text{near } +4} = (\searrow, \swarrow)$       d. Slope-sign  $f|_{\text{near } +4} = (\searrow, \searrow)$   
 e. None of the preceding

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

**13-8.** Let the function  $f$  be specified by the global input-output rule

$$x \xrightarrow{f} f(x) = +x^3 + 5x^2 - 8x + 7$$

What is Slope-sign  $f|_{\text{near } -4}$

**Your Work:**

i. Explain your reasoning in getting your result.

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

- a. Slope-sign  $f|_{\text{near } -4} = (\swarrow, \swarrow)$       b. Slope-sign  $f|_{\text{near } -4} = (\swarrow, \searrow)$   
 c. Slope-sign  $f|_{\text{near } -4} = (\searrow, \swarrow)$       d. Slope-sign  $f|_{\text{near } -4} = (\searrow, \searrow)$   
 e. None of the preceding

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

**13-9.** Let the function  $f$  be specified by the global input-output rule

$$x \xrightarrow{f} f(x) = -x^3 - 15x^2 + 3x - 10$$

What is Concavity-sign  $f|_{\text{near } -5}$

**Your Work:**

i. Explain your reasoning in getting your result.

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

- a. Concavity-sign  $f|_{\text{near } -5} = (\cup, \cup)$       b. Concavity-sign  $f|_{\text{near } -5} = (\cup, \cap)$   
 c. Concavity-sign  $f|_{\text{near } -5} = (\cap, \cup)$       d. Concavity-sign  $f|_{\text{near } -5} = (\cap, \cap)$   
 e. None of the preceding

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

**13-10.** Let the function  $f$  be specified by the global input-output rule

$$x \xrightarrow{f} f(x) = -2x^3 + 10x^2 + 3x - 10$$

What is Concavity-sign  $f|_{\text{near } +2}$

**Your Work:**

i. Explain your reasoning in getting your result.

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

- a. Concavity-sign  $f|_{\text{near } +2} = (\cup, \cup)$       b. Concavity-sign  $f|_{\text{near } +2} = (\cup, \cap)$   
 c. Concavity-sign  $f|_{\text{near } +2} = (\cap, \cup)$       d. Concavity-sign  $f|_{\text{near } +2} = (\cap, \cap)$   
 e. None of the preceding

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

**13-11.** Let the function  $f$  be specified by the global input-output rule

$$x \xrightarrow{f} f(x) = +2x^3 - 4x^2 - 2x + 4$$

What is Local graph  $f|_{\text{near } +2}$

**Your Work:**

i. Explain your reasoning in getting your result.

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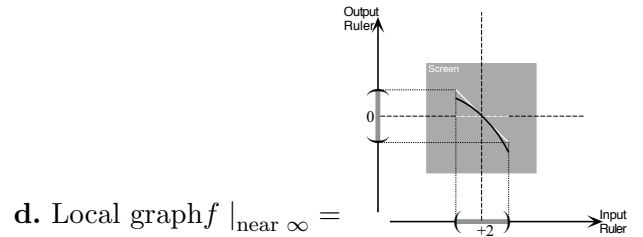
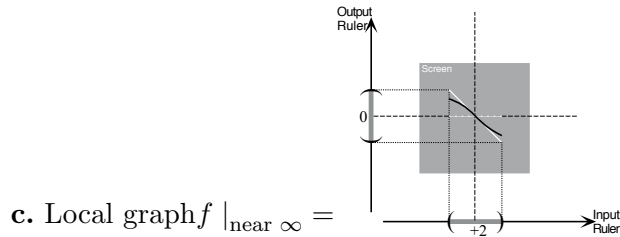
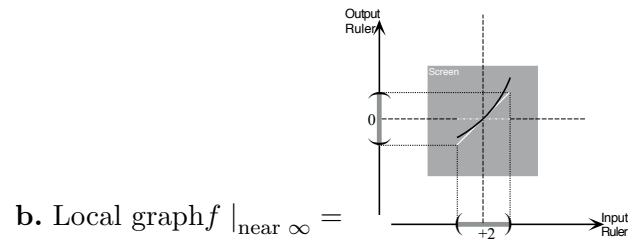
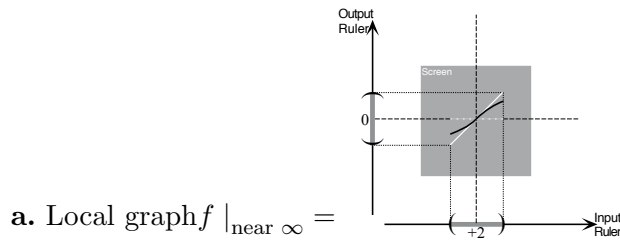


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ii. Circle which of the following choices corresponds to your result.



e. None of the preceding

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