

MATH 161 EXAM II NAME: _____

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[Run: 11/07/2016 at 12:52 Seed: 2081. Order of Checkable Items: Random.]

Response Grid (Check the appropriate boxes thus:)

Question	a	b	c	d	e
1					
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Your score on this EXAM II will count toward your Final Grade. In accordance with the User Manual, if you are unhappy with your score on this EXAM II, you will be able to take MAKE UP II at the end of the semester.

x_m **II-1.** Let f be the *affine* function specified by the **Boundary Value Conditions**:

$$\text{AND} \begin{cases} f(-1) = -7 \\ f(+4) = +3 \end{cases}$$

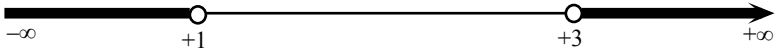



Find the global input-output rule that specifies f .

- a. $x \xrightarrow{f} f(x) = +2x + 10$ b. $x \xrightarrow{f} f(x) = +\frac{1}{2}x + 1$
 c. $x \xrightarrow{f} f(x) = +2x - 5$ d. $x \xrightarrow{f} f(x) = -\frac{1}{2}x + 5$
 e. None of the preceding

x_m **II-2.** Let f be the function specified by the global input-output rule

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

Where is the output of f *negative*?

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

x_m **II-3.** Let f be the function specified by the global input-output rule

$$x \xrightarrow{f} f(x) = +5x^2 + 7x - 6$$

Where, if at all, is the output of f *positive*?

- a. Nowhere except in an *interval* b. Everywhere except in an *interval* c. Nowhere
 d. Everywhere except at a single *input*
 e. None of the preceding

x_m **II-4.** Let f be an *affine* function. Given that

$$\text{AND} \begin{cases} f(x) |_{x \leftarrow +7} = -1 \\ f(x) |_{x \leftarrow +2} = +3 \end{cases}$$

find the *slope* of the global graph of f .

- a. $+\frac{2}{5}$ b. $-\frac{5}{2}$ c. $+\frac{4}{5}$ d. $-\frac{5}{4}$
 e. None of the preceding

x_m **II-5.** Let f be the function specified by the global input-output rule

$$x \xrightarrow{f} f(x) = -5(x-2)(x-8)$$

Locate $x_{0\text{-slope}}$.

- a.** $x_{0\text{-slope}} = +2$ **b.** $x_{0\text{-slope}} = +5$ **c.** $x_{0\text{-slope}} = +8$ **d.** No such input
e. None of the preceding

x_m **II-6.** Let f be the function specified by the global input-output rule

$$x \xrightarrow{f} f(x) = -(x-3)^2 - 7x - 21$$

Find Slope-sign of f near ∞ .

- a.** (\swarrow, \swarrow) **b.** (\swarrow, \searrow) **c.** (\searrow, \swarrow) **d.** (\searrow, \searrow)
e. None of the preceding

x_m **II-7.** Let f be the function specified by the global input-output rule

$$x \xrightarrow{f} f(x) = -12x - 4$$

Find the 0-height input(s) of f , if any.

- a.** -3 **b.** $+3$ **c.** $-\frac{1}{3}$ **d.** $+\frac{1}{3}$

e. None of the preceding

x_m **II-8.** Let f be the function specified by the global input-output rule

$$x \xrightarrow{f} f(x) = x(x-5)(x+3)$$

Where is the output of f equal to 0?

- a.** $+3, -5$ **b.** $-3, +5$ **c.** 0 **d.** No such input
e. None of the preceding

x_m **II-9.** Let f be the function specified by the global input-output rule

$$x \xrightarrow{f} f(x) = -3x^2 + 18x - 5$$

Near which input(s), if any, is the slope of f positive?

- a.** All inputs smaller than -3 **b.** All inputs smaller than $+3$
c. All inputs larger than -3 **d.** All inputs larger than $+3$
e. None of the preceding

x_m **II-10.** Let f be the function specified by the global input-output rule

$$x \xrightarrow{f} f(x) = +x^3 - 3x^2 - 9x - 7$$

What is Slope-sign of f near $+3$?

- a. (\swarrow, \swarrow) b. (\swarrow, \searrow) c. (\searrow, \swarrow) d. (\searrow, \searrow)

e. None of the preceding

x_m **II-11.** Given the function f whose global input-output rule is

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

what is Concavity-sign f near $+2$?

- a. (\cup, \cup) b. (\cup, \cap) c. (\cap, \cup) d. (\cap, \cap)
e. None of the preceding

x_m **II-12.** Let f be the function specified by the global input-output rule

$$x \xrightarrow{f} f(x) = -3x^3 - 27x^2 - 2x + 3$$

Where is f concave up?

- a. For $x < -3$ b. For $x > -3$ c. For $x < +3$ d. For $x > +3$
e. None of the preceding

x_m **II-13.** Let f be the function specified by the global input-output rule

$$x \xrightarrow{f} f(x) = +3x^2 - 12x - 24$$

For which input(s), if any, is Concavity-sign of $f = (\cap, \cap)$?

- a. $+2$ b. All inputs c. All inputs except $+2$
d. No such input

e. None of the preceding

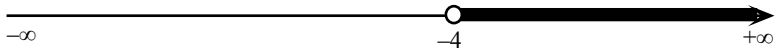

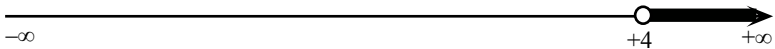

x_m **II-14.** Let f be the function specified by the global input-output rule

$$x \xrightarrow{f} f(x) = +4x + 5$$

and let g be the function specified by the global input-output rule

$$x \xrightarrow{g} g(x) = +7x + 17$$

find the input(s), if any, for which $g(x) > f(x)$.

- a. 
- b. 
- c. 
- d. 

e. None of the preceding

x_m **II-15.** Let f be the function specified by the global input-output rule

$$x \xrightarrow{f} f(x) = -3x^3 + x^2 - 5x - 11$$

Where is the slope of f equal to 0?.

- a.** -2 **b.** $+3$ **c.** $+2, -5$ **d.** Nowhere
e. None of the preceding

x_m **II-16.** Let f be the function specified by the global input-output rule

$$x \xrightarrow{f} f(x) = +3x^2 - 18x + 6$$

What is(are) the highest bounded *output(s)*, if any?.

- a.** -42 **b.** $+42$ **c.** $+64$ **d.** No such output
e. None of the preceding

x_m **II-17.** Let the function f be specified by the global input-output rule

$$x \xrightarrow{f} f(x) = -x^2 + 4x + 12$$

For which input(s), if any, is the output of f equal to 0?

- a.** $-2, +6$ **b.** $+2, -6$ **c.** $+2$ **d.** no such input
e. None of the preceding

x_m **II-18.** Let f be the function specified by the global input-output rule

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

and let g be the function specified by the global input-output rule

$$x \xrightarrow{g} g(x) = -4x + 1$$

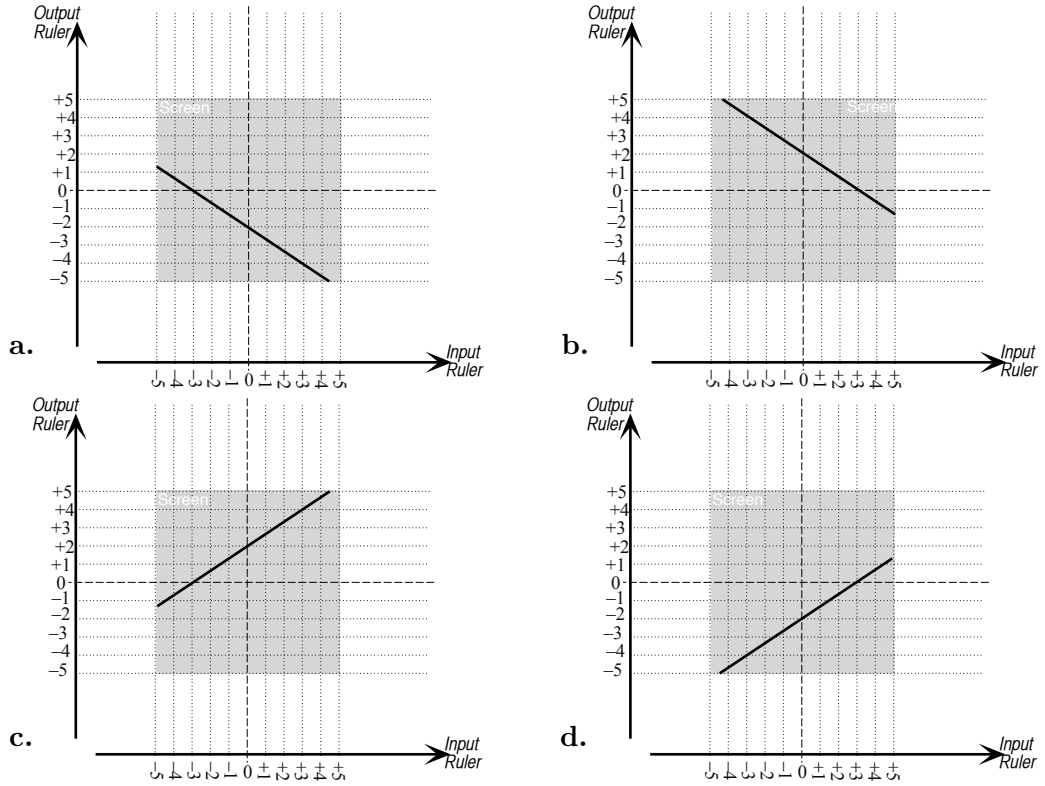
For how many input(s), if any, do the functions f and g return the same output?

- a.** None **b.** One **c.** Two **d.** Three
e. None of the preceding

x_m **II-19.** Let f be the function specified by the global input-output rule

$$x \xrightarrow{f} f(x) = -\frac{2}{3}x - 2$$

find its global graph.



e. None of the preceding

x_m **II-20.** Let f be the function specified by the global input-output rule

$$x \xrightarrow{f} f(x) = +3(-x + 4)^2 - 2x + 13$$

Find Height-sign of f near ∞ .

- a. (+, +) b. (+, -) c. (-, +) d. (-, -)
 e. None of the preceding