

## MATH 161 REVIEW II Questions

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[ Run: 10/23/2011 at 19:54 Seed: 6544. Order of Checkable Items: List.]

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- II-1.** Given the *affine* function *HERB* such that  $HERB(-1) = +5$  and  $HERB(+3) = +15$

$$\text{AND} \begin{cases} \text{Height } HERB |_{-1} = +5 \\ \text{Height } HERB |_{+3} = +15 \end{cases}$$

find Slope *HERB*, that is the slope of the global graph that specifies *HERB*.

- II-2.** Given that the function *DONA* is *affine* and given the *boundary value conditions*:

$$\text{AND} \begin{cases} DONA(x)|_{x \leftarrow +4} = -1 \\ DONA(x)|_{x \leftarrow -2} = +2 \end{cases}$$

find the *global input-output rule* that specifies *DONA*

- II-3.** Given the affine function *JADIH* whose global rule is

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

find its global graph.

- II-4.** Given the function *CRIC* whose global input-output rule is

$$x \xrightarrow{CRIC} CRIC(x) = -3x - 12$$

find its 0-height input(s) if any.

- II-5.** Given the function *FILO* whose global input-output rule is

$$x \xrightarrow{FILO} FILO(x) = +8x + 1$$

and the function *GREG* whose global input-output rule is

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

find the inputs, if any, for which  $FILO(x) < GREG(x)$ .

**II-6.** Given the function *MARC* specified by the global input-output rule

$$x \xrightarrow{MARC} MARC(x) = +3x^2 + 6x - 17$$

find Slope-sign near  $\infty$ .

**II-7.** Given the function *MAY* specified by the global input-output rule

$$x \xrightarrow{MAYO} MAYO(x) = -2x^2 + 4x + 6$$

find Height-sign near  $\infty$ .

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

$$x \xrightarrow{RONI} RONI(x) = +3x^2 + 9x + 6$$

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

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

$$x \xrightarrow{f} f(x) = -3x^2 + 7x - 6$$

where, if at all, is the output of *f* *negative*?

**II-10.** Given the function *TINA* whose global input-output rule is

$$x \xrightarrow{TINA} TINA(x) = -2x^2 + 6x + 8$$

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

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

$$x \xrightarrow{f} f(x) = -4x^2 + 8x + 12$$

near which input(s), if any, is the output of *f* *decreasing*?

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

$$x \xrightarrow{f} f(x) = -26.06x^2 + 13.03x - 21.63$$

for which input(s), if any, is Concavity-sign  $f = (\cup, \cup)$ ?

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

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

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

$$x \xrightarrow{g} g(x) = -3x + 7$$

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

**II-14.** Given the function  $TITO$  whose global input-output rule is

$$x \xrightarrow{TITO} TITO(x) = +3x^2 + 9x + 6$$

what is the highest output(s), if any?.

**II-15.** Given the function  $f$  whose global input-output rule is

$$x \xrightarrow{f} f(x) = x^3 - 12x^2 + 45x + 10$$

what is Slope-sign  $f$  near  $+3$ ?

**II-16.** Given the function  $f$  whose global input-output rule is

$$x \xrightarrow{f} f(x) = -2x^3 + 12x^2 + 8x - 7$$

what is Concavity-sign  $f$  near  $+3$ ?

**II-17.** Given the function  $f$  whose global input-output rule is

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

where is the output equal to 0?

**II-18.** Given the function  $f$  whose global input-output rule is

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

where is the output of  $f$  *negative*?

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

$$x \xrightarrow{f} f(x) = +2x^3 + x^2 + 10x + 7$$

where is the slope of  $f$  equal to 0?.

**II-20.** Given the function  $f$  specified by the global input-output rule

$$x \xrightarrow{f} f(x) = +x^3 - 9x^2 + 15x - 11$$

where is  $f$  *concave up*?