

MATH 161 WORKOUT 14 NAME: \_\_\_\_\_

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[ Run: 10/30/2012 at 11:14. Order of Checkable Items: List.]

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**14-1.** Let  $f$  be the function specified by the global input-output rule

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

If possible, determine where:

- i. Height-sign  $f = (+,+)$
- ii. Height-sign  $f = (-,+)$
- iii. Slope-sign  $f = (\swarrow, \swarrow)$
- iv. Slope-sign  $f = (\swarrow, \searrow)$
- v. Concavity-sign  $f = (\cap, \cap)$
- vi. Concavity-sign  $f = (\cap, \cup)$

**14-2.** Let  $f$  be the function specified by the global input-output rule

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

If possible, determine where:

- i. Height-sign  $f = (+,+)$
- ii. Height-sign  $f = (-,+)$
- iii. Slope-sign  $f = (\swarrow, \swarrow)$
- iv. Slope-sign  $f = (\swarrow, \searrow)$
- v. Concavity-sign  $f = (\cap, \cap)$
- vi. Concavity-sign  $f = (\cap, \cup)$

**14-3.** Let  $f$  be the function specified by the global input-output rule

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

If possible, determine where:

- i.** Height-sign  $f = (+,+)$
- ii.** Height-sign  $f = (-,+)$
- iii.** Slope-sign  $f = (\swarrow, \swarrow)$
- iv.** Slope-sign  $f = (\swarrow, \searrow)$
- v.** Concavity-sign  $f = (\cup, \cup)$
- vi.** Concavity-sign  $f = (\cup, \cap)$

**14-4.** Let  $f$  be the function specified by the global input-output rule

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

If possible, determine where:

- i.** Height-sign  $f = (-,-)$
- ii.** Height-sign  $f = (-,+)$
- iii.** Slope-sign  $f = (\searrow, \searrow)$
- iv.** Slope-sign  $f = (\swarrow, \searrow)$
- v.** Concavity-sign  $f = (\cup, \cup)$
- vi.** Concavity-sign  $f = (\cap, \cup)$