

- ▷. Exercise 1.1.6 parts (a) – (f) are in book. Some have stars (i.e., answers/hints in back of book).  
Let's so 2 similar parts.

**Thm. Theorem 6.** Let  $a, b, c \in \mathbb{R}$ . If the function  $f: \mathbb{R} \rightarrow \mathbb{R}$  is a quadratic function of the form

$$f(x) = ax^2 + bx + c$$

and  $a < 0$ , then the function  $f$  has a maximum value when  $x = \frac{-b}{2a}$ .

**Rmk.** Theorem 6 can be proven using calculus or precalculus mathematics.

- . **ER 1.1.6** Using **only** Theorem 6, what can be concluded about each function given below?

(1)  $g(x) = -5x^2 + 7x$

(2)  $h(x) = x^2 + 3x - 4$

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