

Absolute Extrema

Find the absolute minimum and maximum values on the stated domain, including every input where each value is attained. Explain when an extremum does not exist.

1. Find the absolute minimum and maximum values and all locations where they occur. Explain if either does not exist.

Domain: $\mathbb{R}$ (all real x)

$f(x) = x^2 + 4 \cdot x + 7$

2. Find the absolute minimum and maximum values and all locations where they occur. Explain if either does not exist.

Domain: $\mathbb{R}$ (all real x)

$f(x) = x^3 + 3 \cdot x^2 - 2$

3. Find the absolute minimum and maximum values and all locations where they occur. Explain if either does not exist.

Domain: $\mathbb{R}$ (all real x)

$f(x) = 2 \cdot x^4 + 8 \cdot x^3 - 16 \cdot x - 13$

4. Find the absolute minimum and maximum values and all locations where they occur. Explain if either does not exist.

Domain: $[-2, 2]$

$f(x) = x^2 - 2 \cdot x + 5$

Math Sheet

Name _____ Score _____ Teacher _____ Date _____

Absolute Extrema

Find the absolute minimum and maximum values on the stated domain, including every input where each value is attained. Explain when an extremum does not exist.

5. Find the absolute minimum and maximum values and all locations where they occur. Explain if either does not exist.

Domain: $[-6, 6]$

$$f(x) = -x^3 + 3x^2 - x - 5$$

6. Find the absolute minimum and maximum values and all locations where they occur. Explain if either does not exist.

Domain: $[-4, 4]$

$$f(x) = -2x^4 + 8x^2 - 1$$

7. Find the absolute minimum and maximum values and all locations where they occur. Explain if either does not exist.

Domain: $\mathbb{R}$ (all real x)

$$f(x) = -x^2 + 2$$

8. Find the absolute minimum and maximum values and all locations where they occur. Explain if either does not exist.

Domain: $\mathbb{R}$ (all real x)

$$f(x) = -x^3 + 2$$
