

1. Critical numbers:  $-2, -1, 1$ ; none in  $(-1, 1)$

Absolute maximum at  $(-1, 13)$

Absolute minimum at  $(1, -19)$

2. Local minimum at  $x = \sqrt[3]{3}/2$

Local maximum: none on the given domain

3. (a)  $x = -2, -1$

(b)  $(-\infty, -2)$  and  $(-1, \infty)$

(c)  $(-2, -1)$

(d) Local maximum at  $x = -2$

Local minimum at  $x = -1$

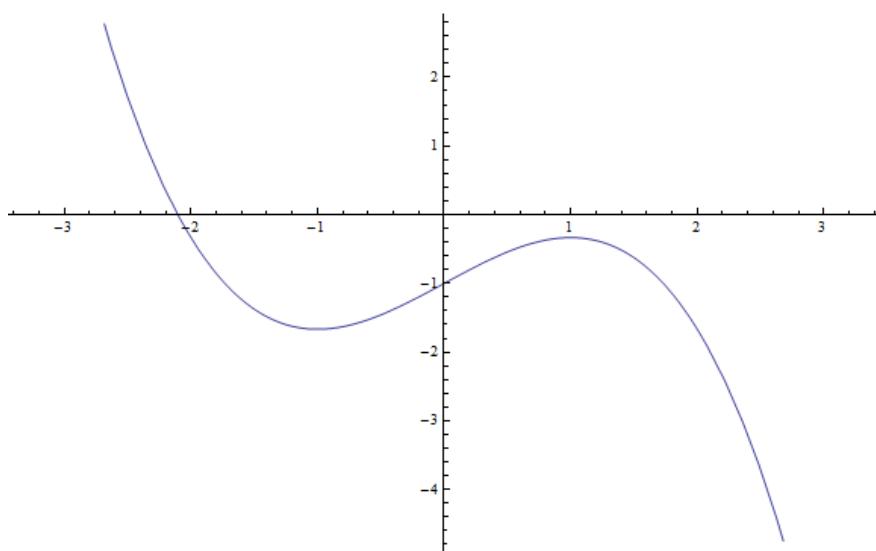
4. (a)  $(-1, 1)$

(b)  $(-\infty, -1)$  and  $(1, \infty)$

(c)  $(-\infty, 0)$

(d)  $(0, \infty)$

(e) See the graph below



5.

| $x$ |              |
|-----|--------------|
| 1   | local min    |
| 2   | neither      |
| 3   | local max    |
| 4   | neither      |
| 5   | inconclusive |