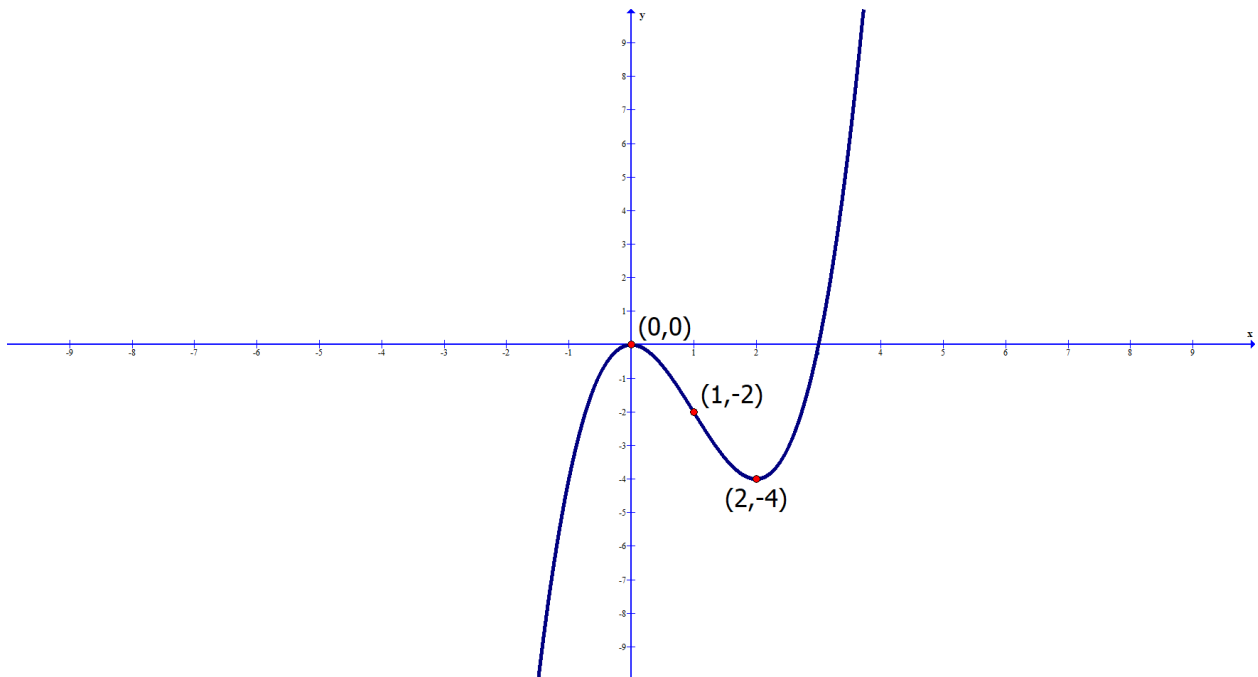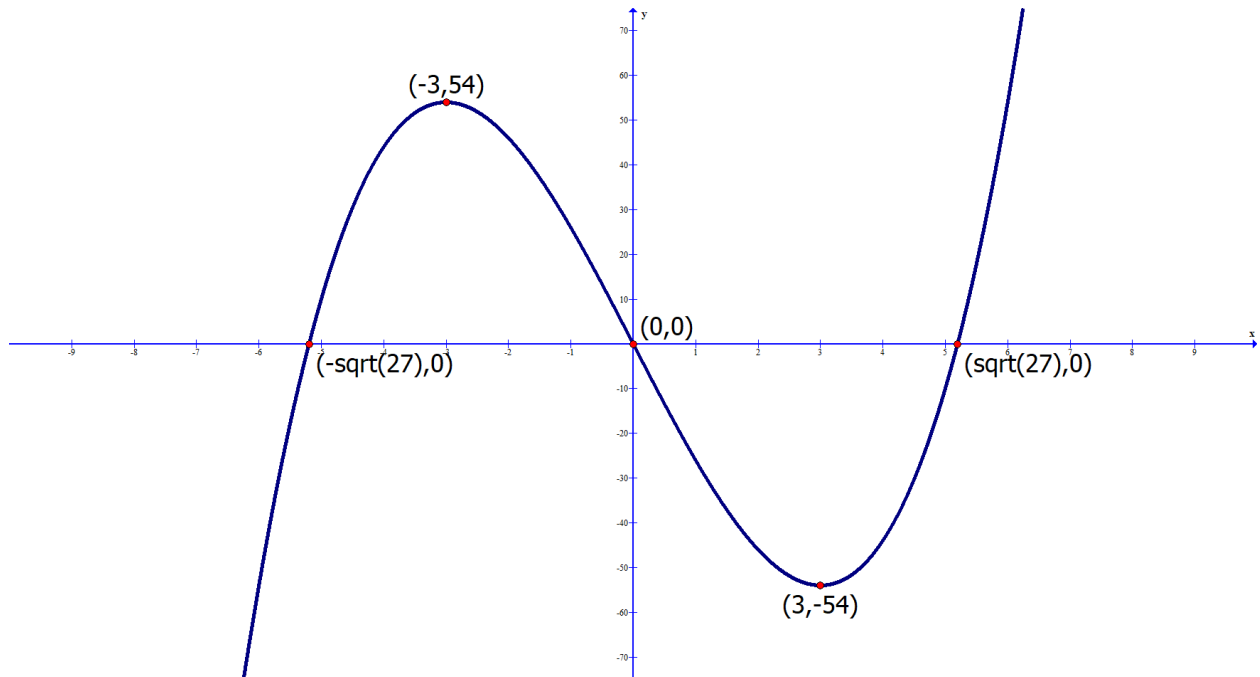Section 3.4
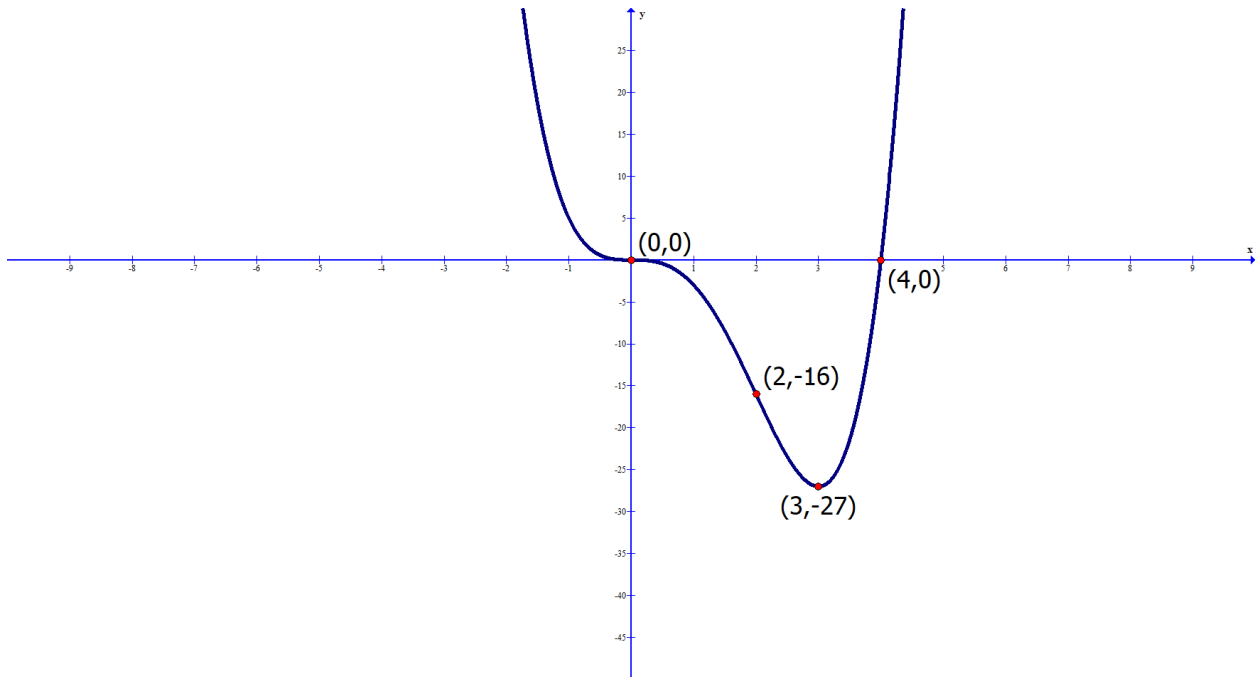
1a) Find the x-intercept(s), if any $(0,0)\ and\ (3,0)$

1b) Find the y-intercept, in there is one (0,0)

1c) Find the interval(s) where the graph of the function is increasing $(-\infty, 0) \cup (2, \infty)$

1d) Find the interval(s) where the graph of the function is decreasing $(0,2)$

1e) Find all relative maxima $(0,0)$

1f) Find all relative minima $(2, -4)$

1g) Find the interval(s) where the graph of the function is concave up (if any) $(1, \infty)$

1h) Find the interval(s) where the graph of the function is concave down (if any) $(-\infty, 1)$

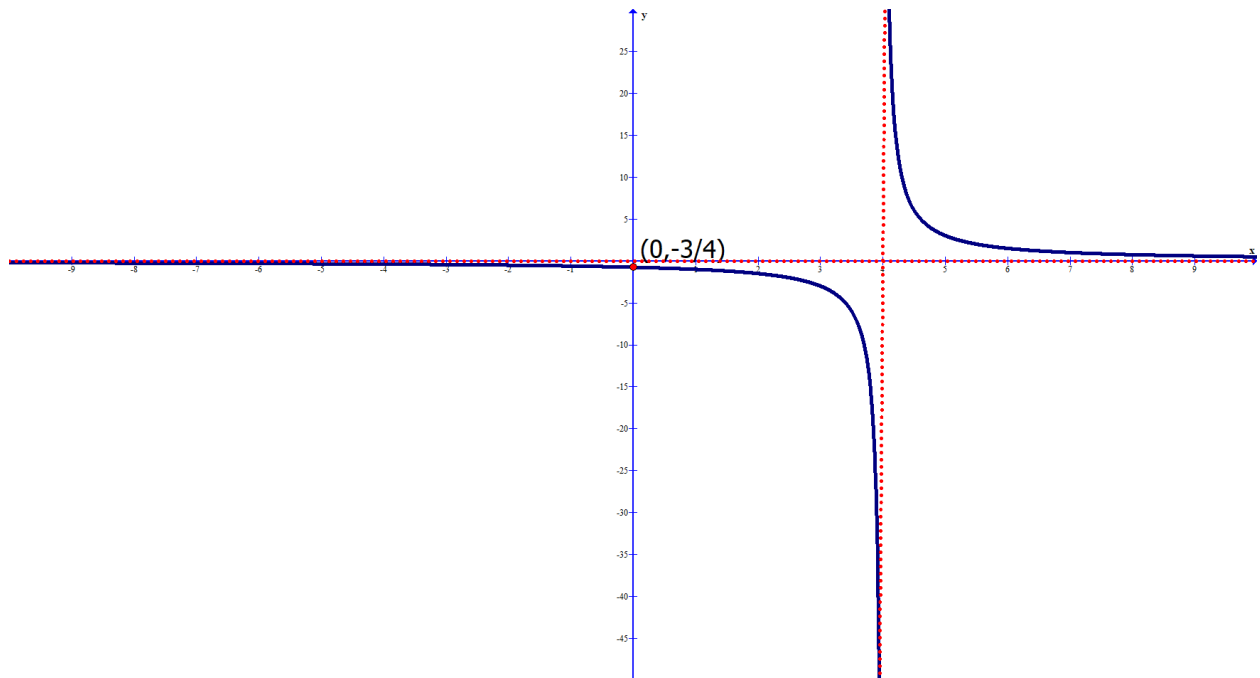1i) Find all inflection points (if any) $(1, -2)$

1j) Sketch a graph

3a) Find the x-intercept(s), if any $(0,0)$ and $(\sqrt{27},0)$ $(-\sqrt{27},0)$ (or $(3\sqrt{3},0)$ and $(-3\sqrt{3},0)$

3b) Find the y-intercept, in there is one $(0,0)$

3c) Find the interval(s) where the graph of the function is increasing $(-\infty,-3) \cup (3,\infty)$

3d) Find the interval(s) where the graph of the function is decreasing $(-3,3)$

3e) Find all relative maxima $(-3,54)$

3f) Find all relative minima $(3,-54)$

3g) Find the interval(s) where the graph of the function is concave up (if any) $(0,\infty)$

3h) Find the interval(s) where the graph of the function is concave down (if any) $(-\infty,0)$

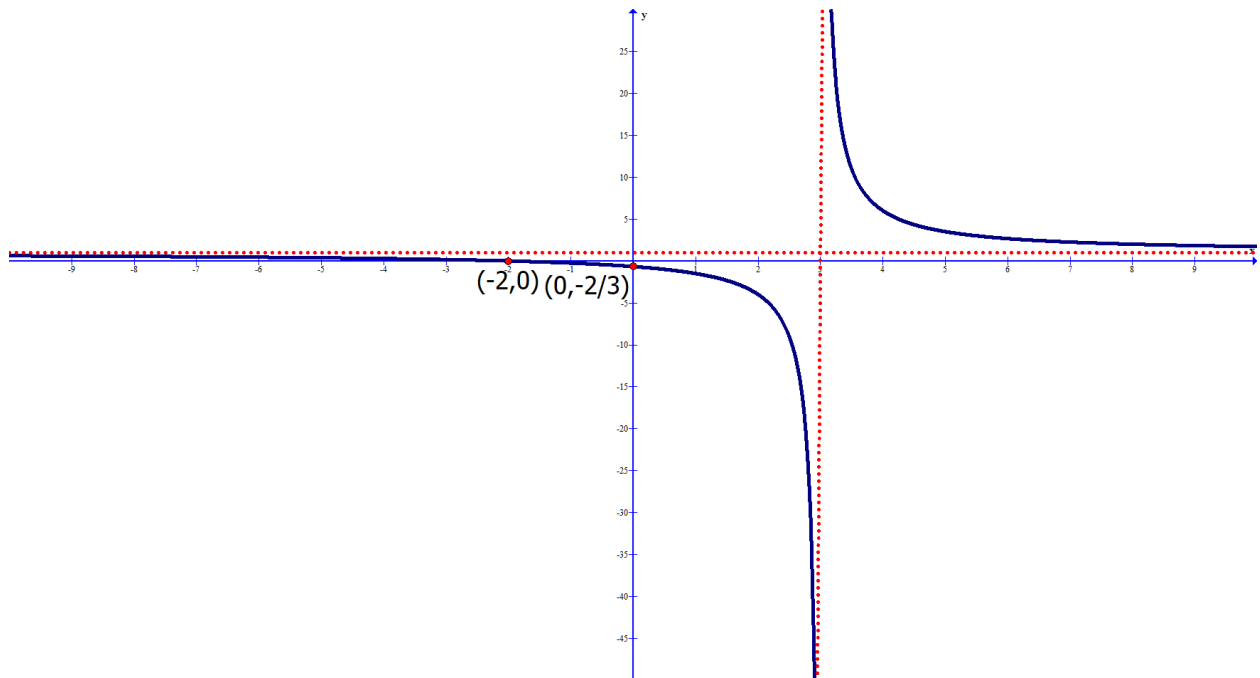3i) Find all inflection points (if any) $(0,0)$

3j) Sketch a graph

5a) Find the x-intercept(s), if any $(0,0)$ and $(4,0)$
5b) Find the y-intercept, in there is one $(0,0)$
5c) Find the interval(s) where the graph of the function is increasing $(3, \infty)$
5d) Find the interval(s) where the graph of the function is decreasing $(-\infty, 0) \cup (0,3)$
5e) Find all relative maxima $none$
5f) Find all relative minima $(3, -27)$
5g) Find the interval(s) where the graph of the function is concave up (if any) $(-\infty, 0) \cup (2, \infty)$
5h) Find the interval(s) where the graph of the function is concave down (if any) $(0,2)$
5i) Find all inflection points (if any) $(0,0)$ and $(2, -16)$
5j) Sketch a graph

7a) Find the domain $(-\infty, 4) \cup (4, \infty)$ or $all\ real\ numbers\ except\ x = 4$

7b) Find the equation of the vertical asymptote $x = 4$

7c) Find the x-intercept(s), if any $none$

7d) Find the y-intercept, in there is one $(0, -\frac{3}{4})$

7e) Find all horizontal asymptotes $y = 0$

7f) Find the interval(s) where the graph of the function is increasing Never

7g) Find the interval(s) where the graph of the function is decreasing $(-\infty, 4) \cup (4, \infty)$

7h) Find all relative maxima and   None

7i) Find all relative minima   None

7j) Find the interval(s) where the graph of the function is concave up (if any) $(4, \infty)$

7k) Find the interval(s) where the graph of the function is concave down (if any) $(-\infty, 4)$

7l) Find all inflection points (if any) $None$

7m) Sketch a graph

(0,-3/4)

9a) Find the domain $(-\infty, 3) \cup (3, \infty)$ or all real numbers except $x = 3$

9b) Find the equation of the vertical asymptote $x = 3$

9c) Find the x-intercept(s), if any $(-2,0)$

9d) Find the y-intercept, in there is one $(0, -\frac{2}{3})$

9e) Find all horizontal asymptotes $y = 1$

9f) Find the interval(s) where the graph of the function is increasing Never

9g) Find the interval(s) where the graph of the function is decreasing $(-\infty, 3) \cup (3, \infty)$

9h) Find all relative maxima and None

9i) Find a ll relative minima None

9j) Find the interval(s) where the graph of the function is concave up (if any) $(3, \infty)$

9k) Find the interval(s) where the graph of the function is concave down (if any) $(-\infty, 3)$

9l) Find all inflection points (if any) *None*

9m) Sketch a graph

11a) Find the x-intercept(s), if any $(0,0)$

11b) Find the y-intercept, in there is one $(0,0)$

11c) Find the interval(s) where the graph of the function is increasing $(-1, \infty)$

11d) Find the interval(s) where the graph of the function is decreasing $(-\infty, -1)$
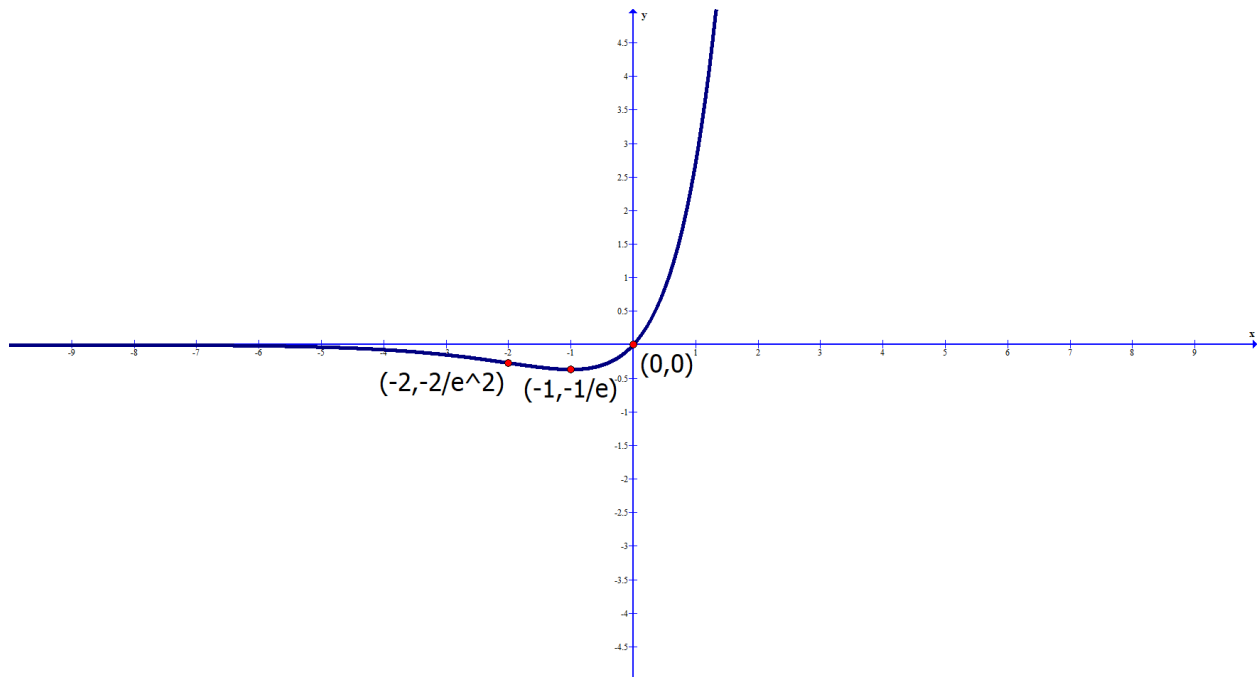
11e) Find all relative maxima *none*

11f) Find all relative minima $\left(-1, \frac{-1}{e}\right)$

11g) Find the interval(s) where the graph of the function is concave up (if any) $(-2, \infty)$

11h) Find the interval(s) where the graph of the function is concave down (if any) $(-\infty, -2)$

11i) Find all inflection points (if any) $\left(-2, \frac{-2}{e^2}\right)$

11j) Sketch a graph

13a) Find the x-intercept(s), if any $(0,0)$

13b) Find the y-intercept, in there is one $(0,0)$

13c) Find the interval(s) where the graph of the function is increasing $(-1, \infty)$

13d) Find the interval(s) where the graph of the function is decreasing $(-\infty, -1)$

13e) Find all relative maxima *none*

13f) Find all relative minima $\left(-1, \frac{-2}{e}\right)$

13g) Find the interval(s) where the graph of the function is concave up (if any) $(-2, \infty)$

13h) Find the interval(s) where the graph of the function is concave down (if any) $(-\infty, -2)$

13i) Find all inflection points (if any) $\left(-2, \frac{-4}{e^2}\right)$

13j) Sketch a graph