1a) interval(s) where the graph is increasing. $(-\infty, -2) \cup (2, \infty)$
1b) interval(s) where the graph is decreasing. $(-2,2)$
1c) the coordinates of relative maximum point if any $(-2,8)$
1d) the relative maximum value $y = 8 \text{ which occurs when } x = -2$
1e) the coordinates of the relative minimum point if any $(2, -8)$
1f) the relative minimum value $y = -8 \text{ which occurs when } x = 2$

3a) interval(s) where the graph is increasing. $(-2,2)$
3b) interval(s) where the graph is decreasing. $(-\infty, -2) \cup (2, \infty)$
3c) the coordinates of relative maximum point if any $(2,35)$
3d) the relative maximum value $y = 35 \text{ which occurs when } x = 2$
3e) the coordinates of the relative minimum point if any $(-2, -29)$
3f) the relative minimum value $y = -29 \text{ which occurs when } x = -2$

5a) interval(s) where the graph is increasing. $(-2,1) \cup (0, \infty)$
5b) interval(s) where the graph is decreasing. $(-\infty, -2) \cup (-1,0)$
5c) the coordinates of relative maximum point if any $(-1,2)$
5d) the relative maximum value $y = 2 \text{ which occurs when } x = -1$
5e) the coordinates of the relative minimum point if any $(-2,1) \text{ and } (0,1)$
5f) the relative minimum value $y = 1 \text{ when } x = -2 ,0$

7a) interval(s) where the graph is increasing. $(-3, \infty)$
7b) interval(s) where the graph is decreasing. $(-\infty, -3)$
7c) the coordinates of relative maximum point if any $none$
7d) the relative maximum value $none$
7e) the coordinates of the relative minimum point if any $(-3,5)$
7f) the relative minimum value $y = 5 \text{ which occurs when } x = -3$

9a) interval(s) where the graph is increasing. $(-\infty, -3)$
9b) interval(s) where the graph is decreasing. $(-3, \infty)$
9c) the coordinates of relative maximum point if any $(-3,5)$
9d) the relative maximum value $y = 5$ *which occurs when* $x = -3$
9e) the coordinates of the relative minimum point if any *none*
9f) the relative minimum value *none*

11a) interval(s) where the graph is increasing. $(-\infty, -7) \cup (-7, -3)$
11b) interval(s) where the graph is decreasing. $(-3,1) \cup (1, \infty)$
11c) the coordinates of relative maximum point if any $(-3, 3.7)$
11d) the relative maximum value $y = 3.7$ *which occurs when* $x = -3$
11e) the coordinates of the relative minimum point if any *none*
11f) the relative minimum value *none*

13a) f'(x) $f'(x) = 2x - 6$
13b) the critical numbers $x = 3$
13c) interval(s) where the graph is increasing. $(3, \infty)$
13d) interval(s) where the graph is decreasing. $(-\infty, 3)$
13e) the coordinates of relative maximum point if any *none*
13f) the relative maximum value *none*
13g) the coordinates of the relative minimum point if any $(3, -6)$
13h) the relative minimum value $y = -6$ *which occurs when* $x = 3$

15a) f'(x) $f'(x) = 2x$
15b) the critical numbers $x = 0$
15c) interval(s) where the graph is increasing. $(0, \infty)$
15d) interval(s) where the graph is decreasing. $(-\infty, 0)$
15e) the coordinates of relative maximum point if any *none*
15f) the relative maximum value *none*
15g) the coordinates of the relative minimum point if any $(0, -3)$
15h) the relative minimum value $y = -3$ *which occurs when* $x = 0$

17a) f'(x) $f'(x) = 3x^2 - 12$

17b) the critical numbers $x = 2, -2$

17c) interval(s) where the graph is increasing. $(-\infty, -2) \cup (2, \infty)$

17d) interval(s) where the graph is decreasing. $(-2, 2)$

17e) the coordinates of relative maximum point if any $(-2, 20)$

17f) the relative maximum value $y = 20 \; which \; occurs \; when \; x = -2$

17g) the coordinates of the relative minimum point if any $(-2, -12)$

17h) the relative minimum value $y = -12 \; which \; occurs \; when \; x = -2$

19a) f'(x) $f'(x) = -3x^2 - 6x + 45$

19b) the critical numbers $x = -5, 3$

19c) interval(s) where the graph is increasing. $(-5, 3)$

19d) interval(s) where the graph is decreasing. $(-\infty, -5) \cup (3, \infty)$

19e) the coordinates of relative maximum point if any $(3, 76)$

19f) the relative maximum value $y = 76 \; which \; occurs \; when \; x = 3$

19g) the coordinates of the relative minimum point if any $(-5, -180)$

19h) the relative minimum value $y = -180 \; which \; occurs \; when \; x = -5$

21a) f'(x) $f'(x) = \dfrac{-7}{(x-5)^2}$

21b) the critical numbers $x = 5$

21c) interval(s) where the graph is increasing. never

21d) interval(s) where the graph is decreasing. $(-\infty, 5) \cup (5, \infty)$

21e) the coordinates of relative maximum point if any none

21f) the relative maximum value none

21g) the coordinates of the relative minimum point if any none

21h) the relative minimum value none

23a) f'(x) $f'(x) = \dfrac{5}{(x+1)^2}$

23b) the critical numbers $x = -1$

23c) interval(s) where the graph is increasing. $(-\infty, -1) \cup (-1, \infty)$

23d) interval(s) where the graph is decreasing. never

23e) the coordinates of relative maximum point if any none

23f) the relative maximum value none

23g) the coordinates of the relative minimum point if any none

23h) the relative minimum value none

25a) f'(x) $f'(x) = e^{3x}(3x + 1)$

25b) the critical numbers $x = -1/3$

25c) interval(s) where the graph is increasing. $\left(-\frac{1}{3}, \infty\right)$

25d) interval(s) where the graph is decreasing. $\left(-\infty, -\frac{1}{3}\right)$

25e) the coordinates of relative maximum point if any none

25f) the relative maximum value none

25g) the coordinates of the relative minimum point if any $\left(-\frac{1}{3}, \frac{-1}{3e}\right)$

25h) the relative minimum value $y = -\frac{1}{3e}$ $which\ occurs\ when\ x = -1/3$