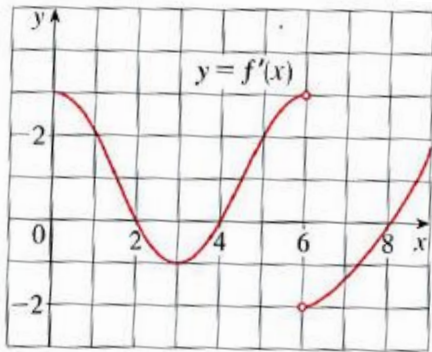
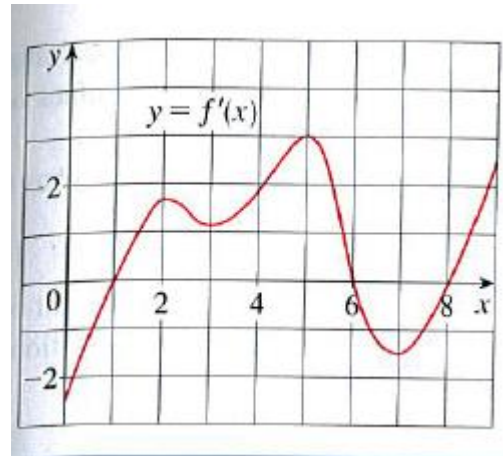


1-2: The graph of the derivative of f' of a continuous function f is shown

1.

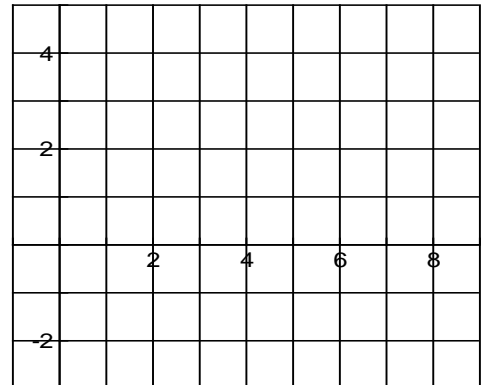
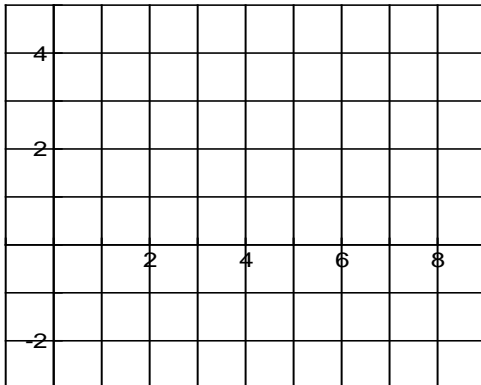


2.



- The open intervals of which f is increasing? Decreasing?
- At what values of x does f have a local maximum? Local minimum?
- The open intervals of which f is concave upward. Concave downward?
- State the x -coordinate(s) of the point(s) of inflection.
- Assuming that $f(0)=0$, sketch the graph of f .

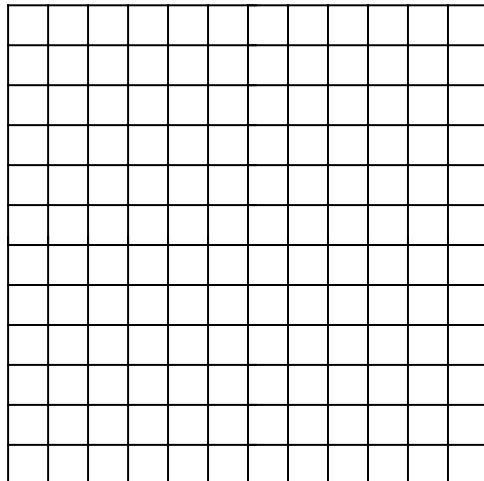
- The open intervals of which f is increasing? Decreasing?
- At what values of x does f have a local maximum? Local minimum?
- The open intervals of which f is concave upward. Concave downward?
- State the x -coordinate(s) of the point(s) of inflection.
- Assuming that $f(0)=0$, sketch the graph of f .



3-6: Find a)-d) for each:

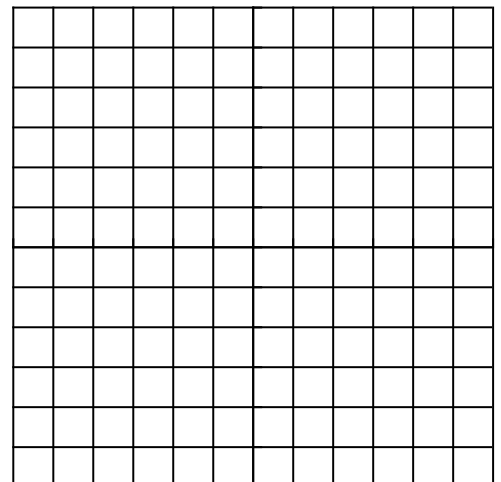
3. $f(x) = x^3 - 12x + 2$

- a.) Find intervals increase:
- decrease:
- b.) Find local max:
- local min:
- c.) Find intervals concave up:
- concave down:
- P.O.I.
- d.) Use a)-c) to sketch



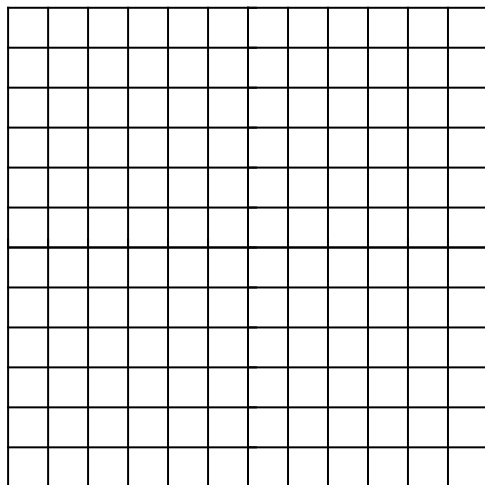
4. $G(x) = 5x^{\frac{2}{3}} - 2x^{\frac{5}{3}}$

- a.) Find intervals increase:
- decrease:
- b.) Find local max:
- local min:
- c.) Find intervals concave up:
- concave down:
- P.O.I.
- d.) Use a)-c) to sketch



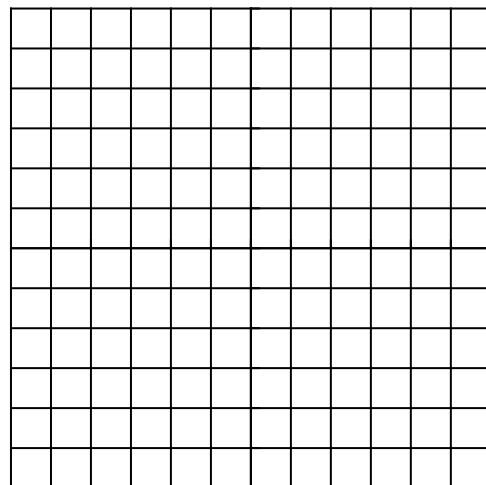
5. $F(x) = x\sqrt{6-x}$

- a.) Find intervals increase:
- decrease:
- b.) Find local max:
- local min:
- c.) Find intervals concave up:
- concave down:
- P.O.I.
- d.) Use a)-c) to sketch



6. $C(x) = x^{\frac{1}{3}}(x+4)$

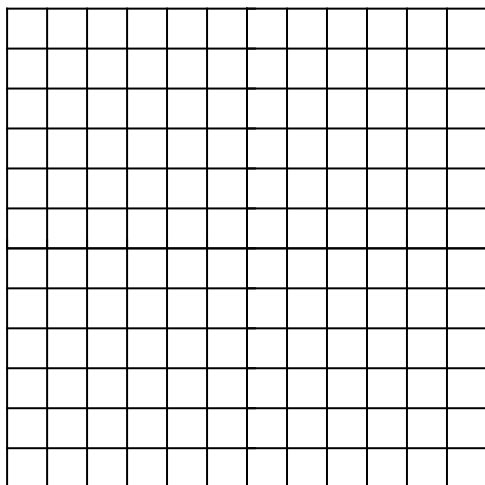
- a.) Find intervals increase:
- decrease:
- b.) Find local max:
- local min:
- c.) Find intervals concave up:
- concave down:
- P.O.I.
- d.) Use a)-c) to sketch



7-8: Find a)-e) for each.

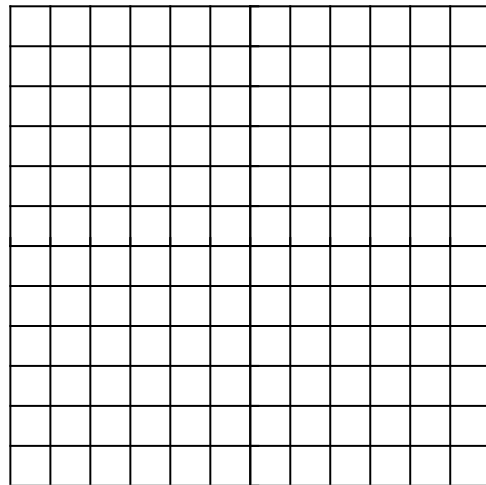
$$7. f(x) = \frac{x^2 - 4}{x^2 + 4}$$

- a.) Find
VA:
HA:
- b.) Find intervals
Increase:
Decrease:
- c.) Find
Local Max(s):
Local Min(s):
- d.) Find intervals
Concave Up:
Concave Down:
- e.) Use a)-d) to sketch



$$8. f(x) = \frac{e^x}{1 - e^x}$$

- a.) Find
VA:
HA:
- b.) Find intervals
Increase:
Decrease:
- c.) Find
Local Max(s):
Local Min(s):
- d.) Find intervals
Concave Up:
Concave Down:
- e.) Use a)-d) to sketch



AP Calculus
Curve Sketching

Name _____ Pd. _____
Day 4 Curve Sketching

Answers:

- 1 a) Increasing: $(0,2)$, $(4,6)$, & $(8,9)$
Decreasing: $(2,4)$ & $(6,8)$ b) Max: $x = 2$ & 6
Min: $x = 4$ & 8 c) Concave Up: $(3,6)$ & $(6,9)$
Concave Down: $(0,3)$ d) POI: $x = 3$ e) Answers vary
- 2 a) Increasing: $(1,6)$ & $(8,9)$
Decreasing: $(0,1)$ & $(6,8)$ b) Max: $x = 6$
Min: $x = 1$ & 8 c) Concave Up:
 $(0,2)$, $(3,5)$, & $(7,9)$
Concave Down:
 $(2,3)$ & $(5,7)$ d) POI:
 $x = 2, 3, 5$ & 7 e) Answers vary
- 3 a) Increasing: $(-\infty, -2)$ & $(2, \infty)$
Decreasing: $(-2, 2)$ b) Max: $(-2, 18)$
Min: $(2, -14)$ c) Concave Up: $(0, \infty)$
Concave Down: $(-\infty, 0)$
POI: $(0, 2)$
- 4 a) Increasing: $(0, 1)$
Decreasing: $(-\infty, 0)$ & $(1, \infty)$ b) Max: $(1, 3)$
Min: $(0, 0)$ c) Concave Up: $(-\infty, -\frac{1}{2})$
Concave Down: $(-\frac{1}{2}, 0)$ & $(0, \infty)$
POI: $(-\frac{1}{2}, 3.78)$
- 5 a) Increasing: $(-\infty, 4)$
Decreasing: $(4, 6)$ b) Max: $(4, 4\sqrt{2} \approx 5.7)$
Min: none c) Concave Up: $(-\infty, 6)$
Concave Down: none
POI: none
- 6 a) Increasing: $(-1, \infty)$
Decreasing: $(-\infty, -1)$ b) Max: none
Min: $(-1, -3)$ c) Concave Up: $(-\infty, 0)$ & $(2, \infty)$
Concave Down: $(0, 2)$
POI: $(0, 0)$ & $(2, 7.6)$
- 7 a) VA: none
HA: $y = 1$ b) Increasing: $(0, \infty)$
Decreasing: $(-\infty, 0)$ c) Max: none
Min: $(0, -1)$ d) Concave Up: $(-\sqrt{\frac{4}{3}}, \sqrt{\frac{4}{3}})$
Concave Down: $(-\infty, -\sqrt{\frac{4}{3}})$ & $(\sqrt{\frac{4}{3}}, \infty)$
- 8 a) VA: $x = 0$
HA: $y = -1$ b) Increasing: $(-\infty, 0)$ & $(0, \infty)$
Decreasing: none c) Max: none
Min: none d) Concave Up: $(-\infty, 0)$
Concave Down: $(0, \infty)$