

## ANSWERS

1.  $f(6) = f(2) = 0$

$c = 1$

2.  $f(6) = f(1) = 0$

$c = \sqrt{3}/6$

3.  $x = \sqrt{39}/3$

4. B

5. d

6. E

7 A:  $x = 1$ ,  $f'$  SWITCHES

FROM POSITIVE TO NEG.

B.  $x = .6$

C.  $(-2, .6)$

D.  $f(2), f(0), f(1), f(-2)$

E.  $-12$

8. a.  $(-1, 1)$   $g''$  IS POSITIVE.

b.  $(-2, 0)$   $g''$  IS INCREASING

c.  $-1$  AND  $1$

d. 0

e. NEGATIVE!  $g'''$  IS CONCAVITY  
OF  $g''$ .  $g''$  IS CONCAVE DOWN  
AT  $x = 0$ .

9. E

10.  $h' = \frac{3}{2} x^{-1/2} (x-1)$

a)  $x = 0, 1$

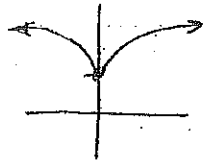
b)  $g' = \cos x - \sin x = 0$

$\tan x = 1$

$\pi/4, 5\pi/4$

11 A)  $f' = \frac{2}{3x^{2/3}} ; CP: 0$

$f'' = \frac{-2}{9x^{5/3}} ; PFOI: 0$



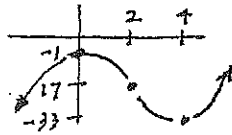
11 B)  $f' = 3x^2 - 12x ; CP: 0, 4$

$f'' = 6x - 12 ; PFOI: 2$

$(0, -1)$

$(2, -17)$

$(4, -33)$



12 A)  $h' = x^3 - 8 ; X = 2$

$f' \begin{array}{c} - \\ | \\ + \end{array} \begin{array}{c} 2 \\ | \\ + \end{array} \text{ REL MIN @ } X=2$   
 $f \begin{array}{c} \rightarrow \\ | \\ \nearrow \end{array}$

B)  $f' = 4x(x^2 - 4)$

$f' \begin{array}{c} -2 \\ | \\ + \\ | \\ 0 \\ | \\ - \\ | \\ 2 \\ | \\ + \end{array}$   
 $f \begin{array}{c} \rightarrow \\ | \\ \nearrow \\ | \\ \searrow \\ | \\ \nearrow \end{array}$

REL MAX:  $X = 0$

REL MIN:  $X = \pm 2$

13. A)

$f''(0) = \text{POS } \curvearrowright \text{ REL MIN @ } X = 0$

$f''(\sqrt{2}/2) = \text{NEG } \curvearrowright \text{ REL MAX @ } X = \sqrt{2}/2$

$f''(-\sqrt{2}/2) = \text{NEG } \curvearrowright \text{ REL MAX @ } X = -\sqrt{2}/2$

14 A)

$$f(-1) = 5 \text{ ABS MAX}$$

$$f(1) = -3 \text{ ABS MIN}$$

$$f(3) = 5 \text{ ABS MAX}$$

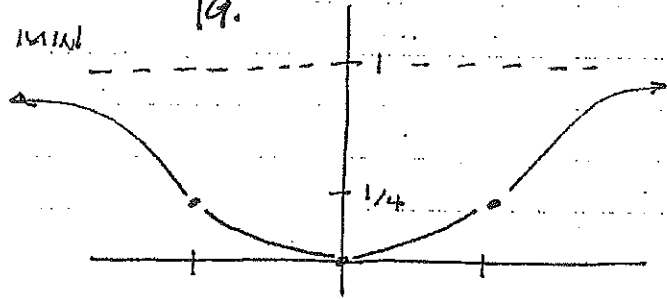
(B)  $f(0) = 0$

$$f(\pi/4) = 1 \text{ ABS MAX}$$

$$f(3\pi/4) = -1 \text{ ABS MIN}$$

$$f(\pi) = 0$$

19.



REL MIN @  $x = 0$

POI @  $x = \pm 1$

15 A)  $f' = 2x - 1$

DEC:  $(-\infty, 1/2)$

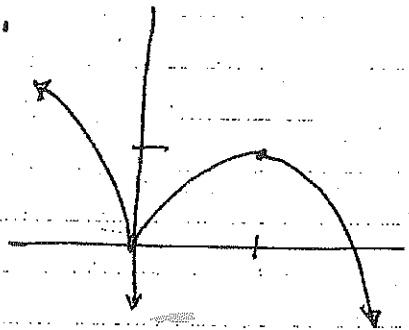
INC:  $(1/2, \infty)$

B)  $f' = \frac{-2}{(x-2)^2}$

DEC:  $(-\infty, 2) (2, \infty)$

INC: NONE

20.



REL MIN @  $(0,0)$

REL MAX @  $(1,1)$

NO POI.

16. A) CC ↓ :  $(0, \pi/2) (3\pi/2, 2\pi)$

CC ↑ :  $(\pi/2, 3\pi/2)$

B)  $g'' = 6x$

CC ↑ :  $(0, \infty)$

CC ↓ :  $(-\infty, 0)$

17.  $f(0) = 5 \text{ ABS MAX}$

$$f(2) = -7 \text{ ABS MIN}$$

$$f(3) = -4$$

18.  $f(0) = 0 \text{ ABS MIN}$

$$f(1) = 1/2 \text{ ABS MAX}$$

$$f(2) = 2/5$$