محمدصالح محمدی

۱) $f(x) = 1 - a/x$

$f(1) = 1 - a$, $f(3) = 1 - a/3$ $\quad \frac{f(3) - f(1)}{2}$ $\quad 1 - a/3 - 1 + a = \frac{2a/3}{2}$

$a/3 \qquad f'(x) = a/3$

$1 - ax^{-1} \longrightarrow ax^{-2} = f'(x) \qquad a/x^2 = a/3 = \underline{x = \pm\sqrt{3}}$

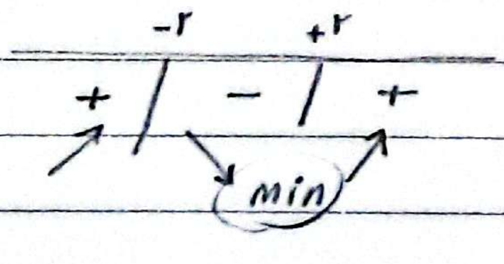
۲) $y = 2ax^2 - 5x + 18a = x$

$2ax^2 - 6x + 18a = 0$

$36 - 4(2a)(18a) = 0 \qquad 1 - 4a^2 = 0 \qquad \boxed{a = \pm 1/2}$

۳) $y = x^3 - 12x + 2$

$y' = 3x^2 - 12 \longrightarrow y' = 0 \qquad 3x^2 - 12 = 0 \qquad x = \pm 2$



$\to y = 8 - 24 + 2 = -14$ min

۴) $y = x^3 + ax^2 - 2bx - 4 \qquad \sqrt{(0+2)^2 + (-4-0)^2} = \sqrt{4+16} = \sqrt{20}$

$y' = 3x^2 + 2ax - 2b \qquad 2\sqrt{5}$

$k(x)(x+2) \Rightarrow a = 3$, $b = 0$

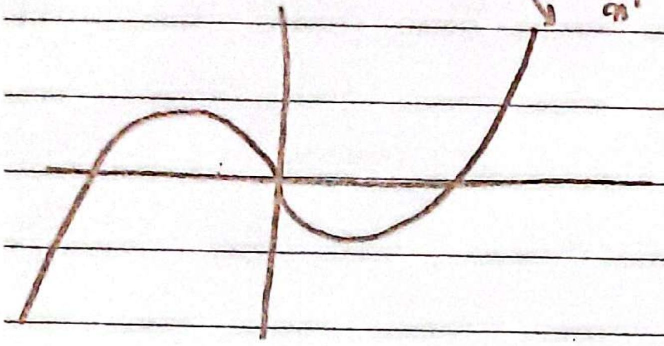
 $y = x^3 + 3x^2 - 4 \qquad f(0) = -4 \qquad f(-2) = -8 + 12 - 4 = 0$

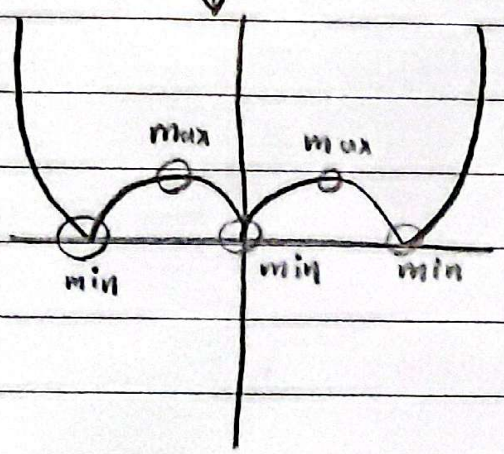
۵)

$f(x) = x^2 - 5|x|$

$\rightarrow x^2 - 5x \quad (x)(x-5)$

$\rightarrow x^2 + 5x \quad (x)(x+5)$





$\rightarrow n = 3 \quad m = 2$

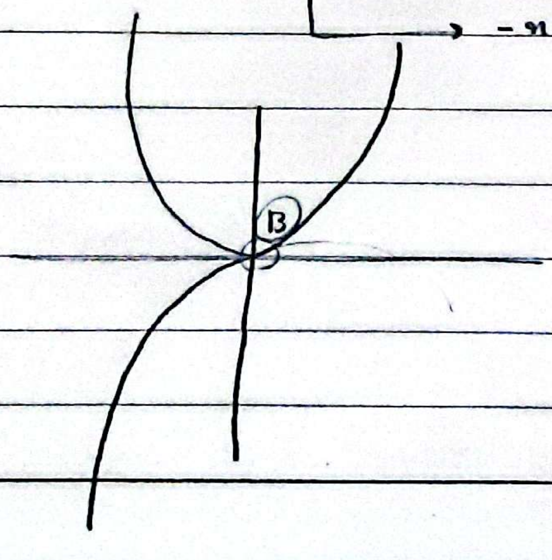
$n/m = 3/2$

۶)

$x|x| + 3x$

$\rightarrow x^2 + 3x \quad x(x+3)$

$\rightarrow -x^2 + 3x \quad x(-x+3)$



یک نقطه

موضوع الدرس: التاريخ   /   /

٧)

$x^{٢/٣}(x-a)$

$x^{\frac{٢}{٣}}(a-x)$

$ax^{\frac{٢}{٣}} - x^{٥/٣} = \frac{٢}{٣}a\,x^{-١/٣} - ٥/٣\,x^{٢/٣}$

$\frac{x^{-١/٣}}{٣}\left(٢a - ٥x\right) = ٠ \quad x = \frac{٢a}{٥}$

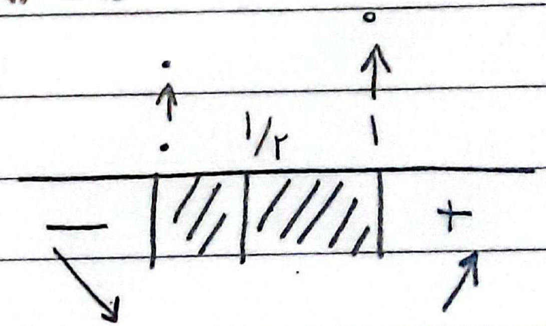
$\sqrt[٣]{٤a^{٢}/٢٥ \times ٢a/٥} = ٢/٥ \quad ٥/٢$

$\frac{١٢٥}{٨} = \frac{٤a^{٢}}{٢٥}$

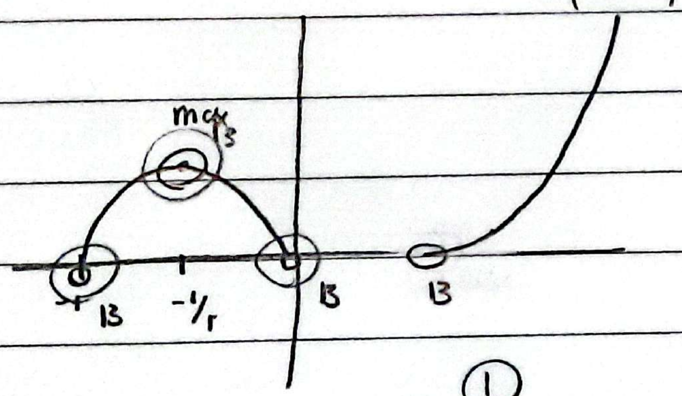
$\frac{٢٥\times ١٢٥}{٣٢} = \frac{٢٥\sqrt{٥}}{٤\sqrt{٢}} = a$

$$f(x) = \sqrt{x|x| - x} \to \sqrt{x^2 - x}$$
$$\to \sqrt{-x^2 - x}$$
۸)

$$\sqrt{x^2 - x} \to \frac{2x-1}{2\sqrt{x^2-x}} \to$$



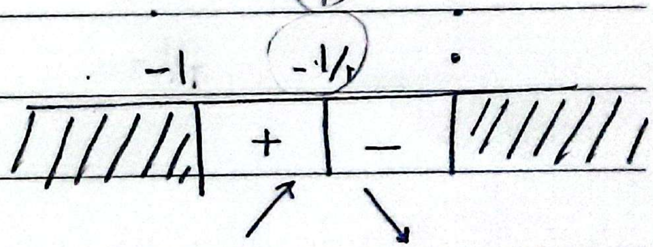
$x(x-1)$



①

$$\frac{-2x-1}{2\sqrt{-x^2-x}}$$

$-x(x+1)$ $\quad \frac{1}{4}$



موضوع الدرس: التاريخ / /

۹)

$y = \dfrac{mx+2}{x-1+m}$

$\dfrac{m(m-1)-2}{(x+m-1)^2} = \dfrac{m^2-m-2}{(x+m-1)^2}$

-1 ? 2
+ | - | +

۳ مقدار

-1 / 0 / 1

۱۰)

$\dfrac{1(1-x^2)-(x)(-2x)}{(1-x^2)^2}$ $\dfrac{1-x^2+2x^2}{}$ $\dfrac{1+x^2}{1-x^2} = x = 1$ ✓

$\dfrac{x}{1-x^2}$

$\dfrac{x}{1+x^2}$ $\dfrac{1(1+x^2)-(x)(2x)}{(1+x^2)^2} = \dfrac{-x^2+1}{(1+x^2)^2} = x = 1$

۲ بحرانی دارد