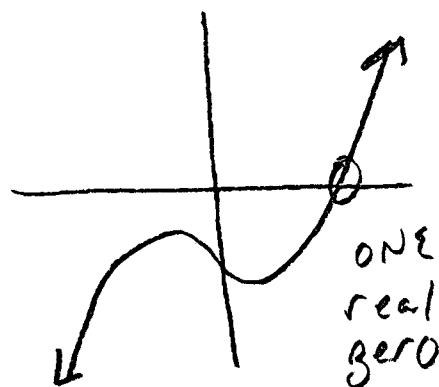
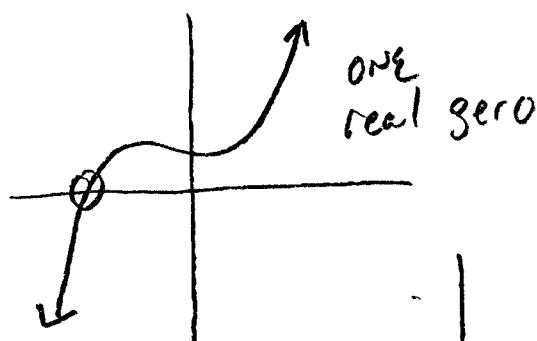
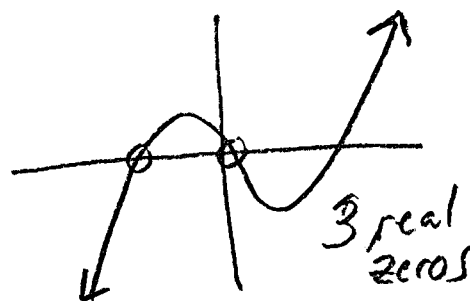
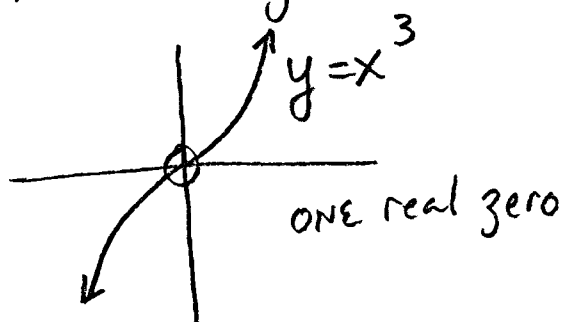


10-4 Graphing Polynomial Functions

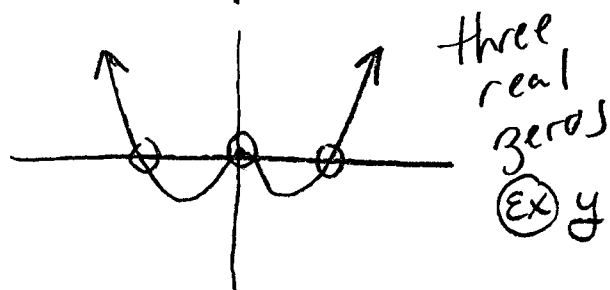
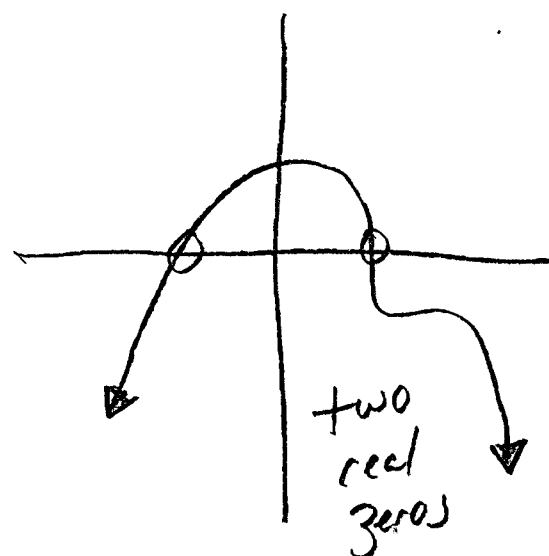
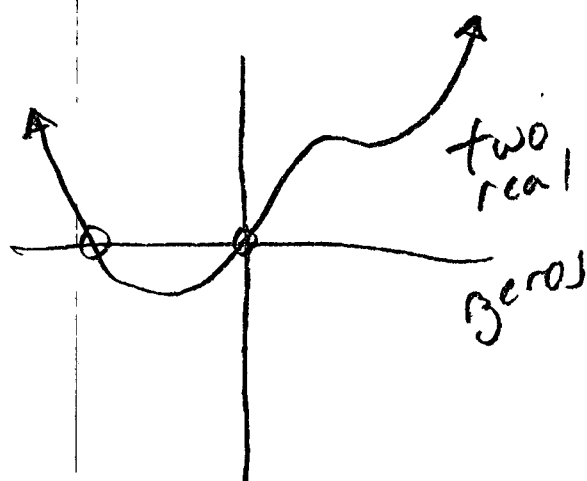
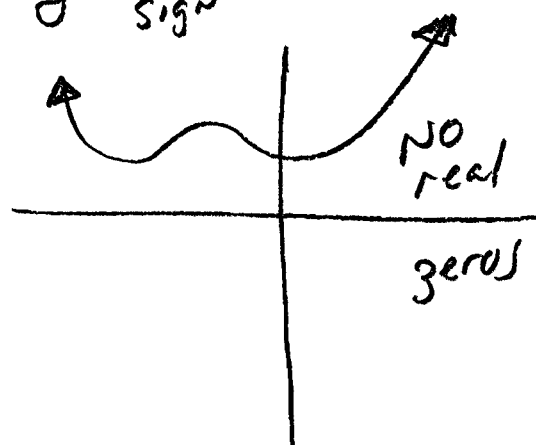
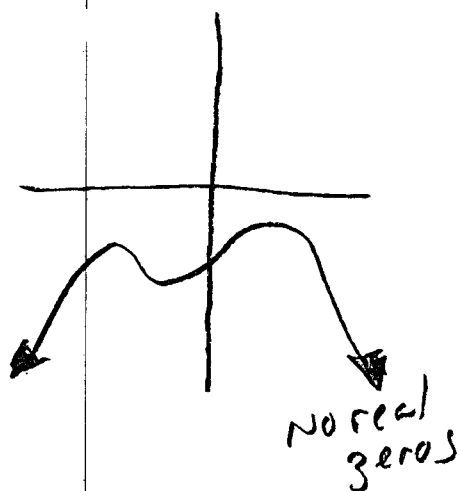
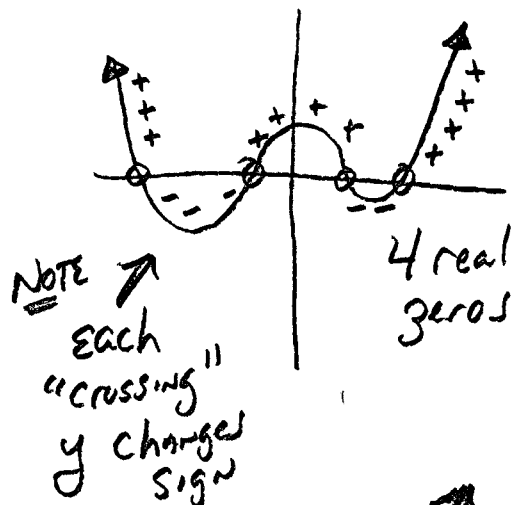
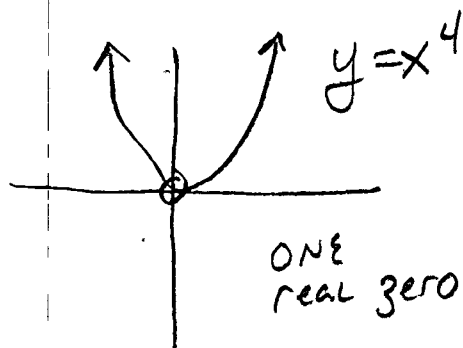
This chapter is 3rd degree and 4th degree $P(x)$

- x & y intercepts (be alert to factoring tricks)
- A sign chart (for the intervals between the x -intercepts)
- a "smart" ∇ -table
- "continuous" functions

$P(x) = 3^{\text{rd}}$ degree $\Rightarrow$ ODD Function



$P(x) = 4^{\text{th}} \text{ degree} \Rightarrow \underline{\text{EVEN}} \text{ FUNCTION}$



EX $y = x^4 - 4x^2$

EX 10-4-b, pg 462

EX1
pg 462
10-4-6

GRAPH $f(x) = x^4 - 4x^2$

$\nearrow$ gcf $\Rightarrow x^2$

Y-intercepts $\Rightarrow x=0 \therefore y = (0)^4 - 4(0)^2 = 0$

$(0,0) \Rightarrow$ ONLY ONE

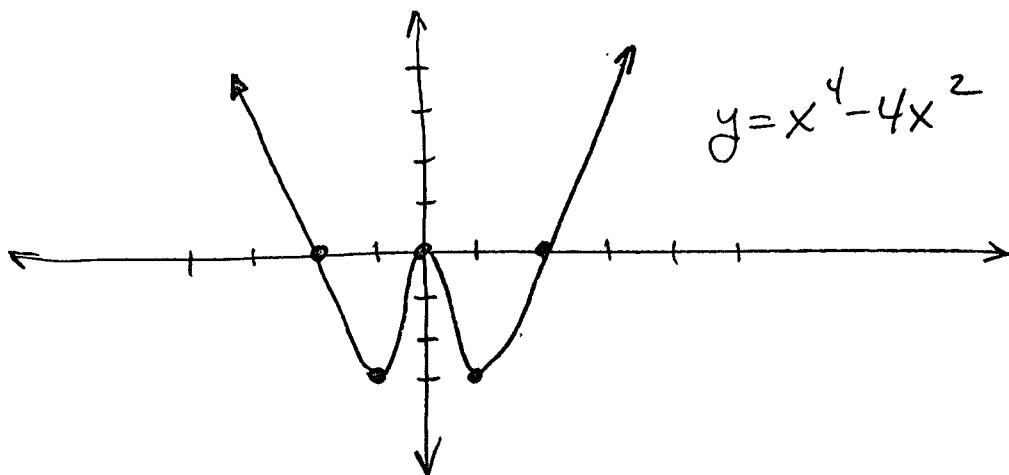
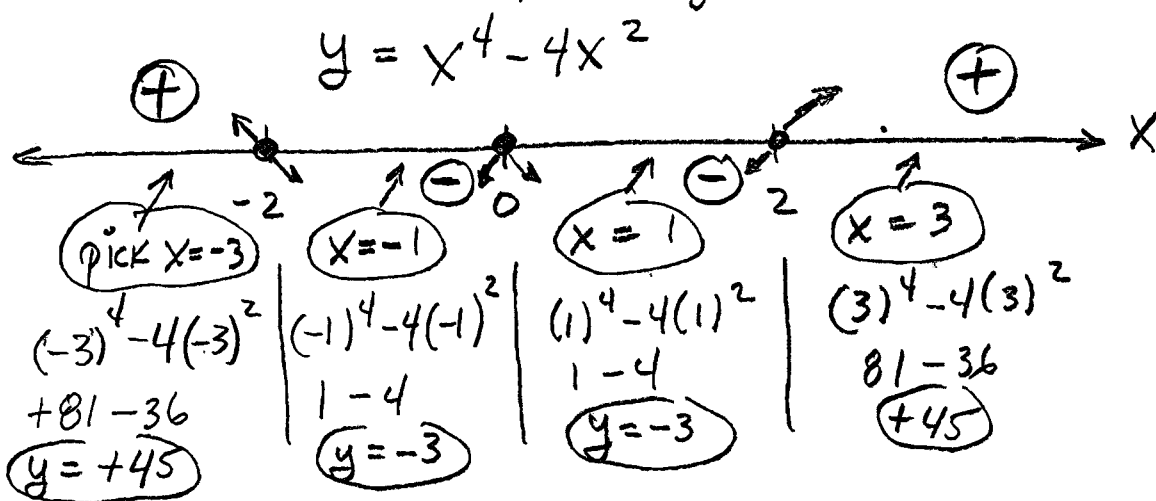
X-intercepts $\Rightarrow y=0 \therefore 0 = x^4 - 4x^2$

$0 = x^2(x^2 - 4)$

$0 = x^2(x-2)(x+2) \therefore x = \{0, -2, 2\}$

$\Rightarrow (0,0), (-2,0), (2,0)$ three

FIND "SIGNS" IN EACH INTERVAL





Solve $0 = x^4 - 4x^2$



Examples Random

Input interpretation:

solve

$$0 = x^4 - 4x^2$$

Results:

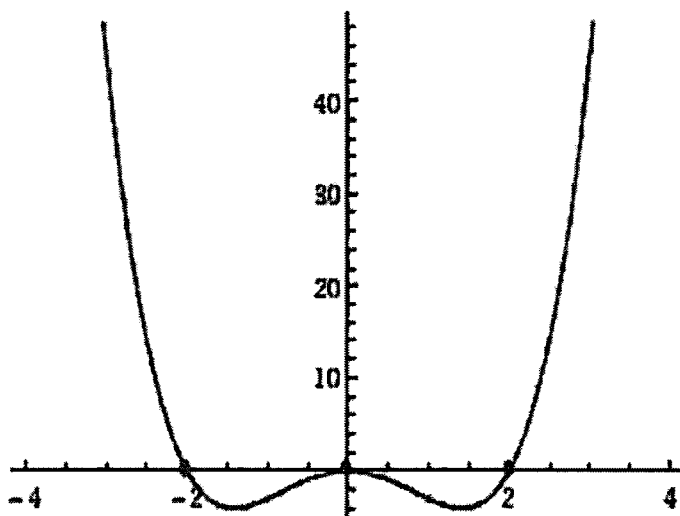
$$x = \pm 2$$

$$x = 0$$

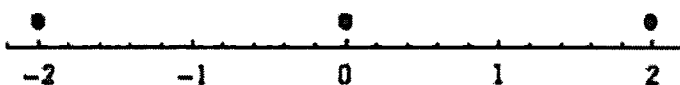
☒ Step-by-step solution

use
wisely and
with
integrity

Root plot:



Number line:



Computed by Wolfram Mathematica

Download page

EX2
Pg 463

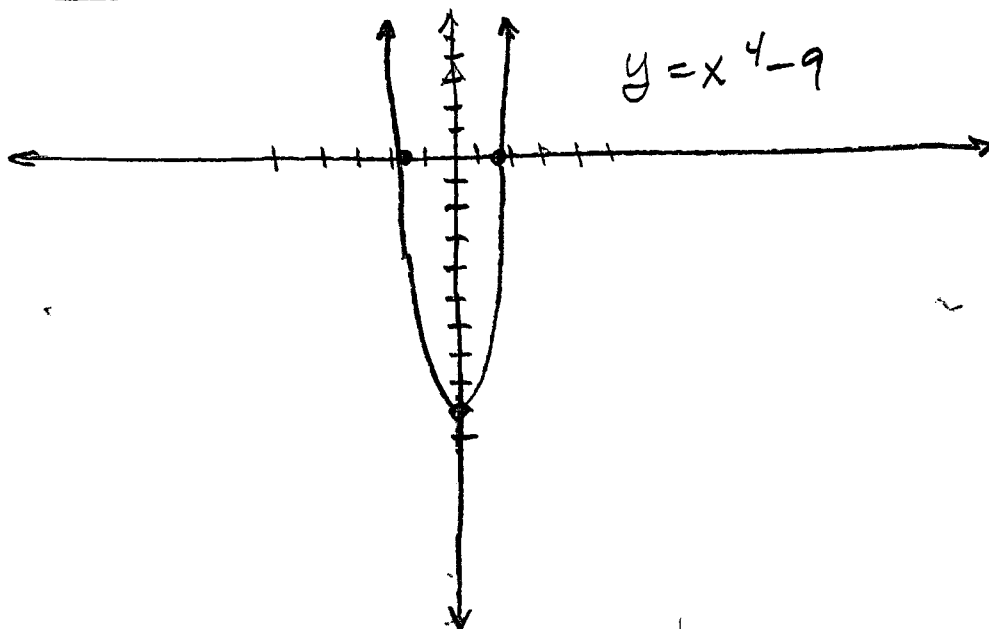
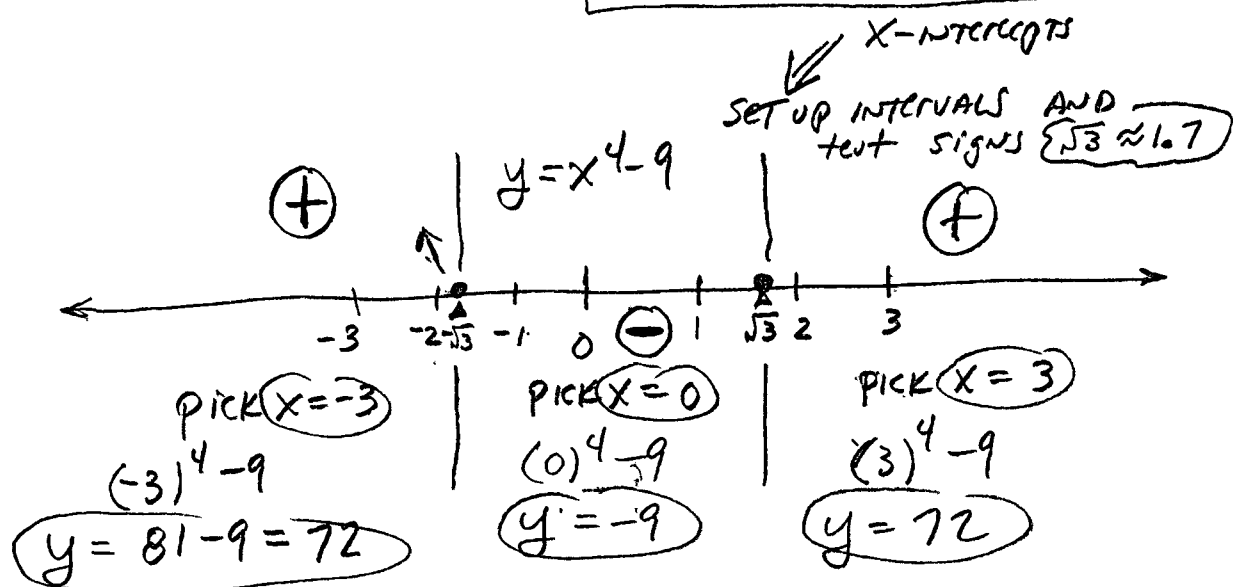
GRAPH $y = f(x) = x^4 - 9$

y-intercepts $\Rightarrow x = 0 \therefore y = -9$ $(0, -9)$
y-intercepts

x-intercepts $\Rightarrow 0 = x^4 - 9$
 $\Rightarrow y = 0$ $0 = (x^2 - 3)(x^2 + 3)$

$\therefore x^2 = 3$ | $x^2 = -3$
 $x = \pm\sqrt{3}$ | $x = \pm i\sqrt{3}$

$(-\sqrt{3}, 0), (\sqrt{3}, 0), (-i\sqrt{3}, 0), (i\sqrt{3}, 0)$



Solve $0=x^4-9$ 
[Examples](#) [Random](#)

Input interpretation:

solve

$0 = x^4 - 9$

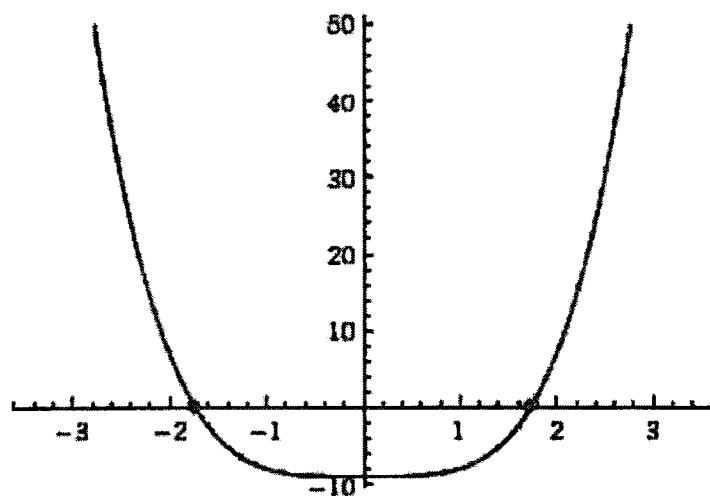
Results:

[More digits](#)
[Step-by-step solution](#)

$$x = \pm\sqrt{3} \approx \pm 1.7321$$

$$x = \pm(i\sqrt{3}) \approx \pm(1.7321i)$$

Root plot:



Roots in the complex plane:

