

p. 303 evens

#6  $x(x+5)(x+2)$

8  $x(x-9)(x+2)$

10  $x(x-6)(x+6)$

12  $3x(3x-1)(x+1)$

14  $2, -9 \leftarrow 3(x - \frac{1}{3})$

16  $-1, 2, 3$

18  $0, -2, -3$

20  $x = 5, 6, 7$

22  $y = x^3 - 9x^2 + 27x - 27$

24  $y = x^4 + 10x^3 + 35x^2 + 50x + 24$

#13  $y = (x-1)(x+2)$   
find zeros

if  $(x-b)$  is a factor  
then  $b$  is a zero

factors  $\left\{ \begin{array}{l} x-1 \rightarrow 1 \text{ is zero} \\ x+2 \rightarrow -2 \text{ is zero} \end{array} \right.$

$x+2 = x - (-2)$

$x - b, b = -2$

22. 3, 3, 3

$$(x-3)(x-3)(x-3)$$

$$(x-3)(x^2 - 6x + 9)$$

$$x^3 - 6x^2 + 9x$$

$$-3x^2 + 18x - 27$$

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$$x^3 - 9x^2 + 27x - 27$$

#24  $x = -1, -2, -3, -4$  zeros

$$(x - (-1))(x - (-2))(x - (-3))(x - (-4)) \text{ factors}$$

$$(x+1)(x+2)(x+3)(x+4)$$

FOIL

FOIL

$$(x^2 + 3x + 2)(x^2 + 7x + 12)$$

$$x^4 + 7x^3 + 12x^2$$

$$+ 3x^3 + 21x^2 + 36x$$

$$+ 2x^2 + 14x + 24$$

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$$x^4 + 10x^3 + 35x^2 + 50x + 24$$

standard form

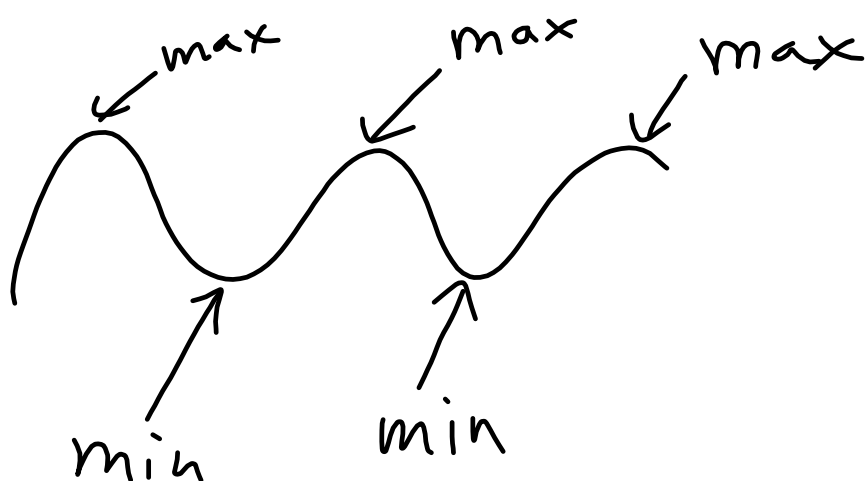
Topic: multiplicity of a zero

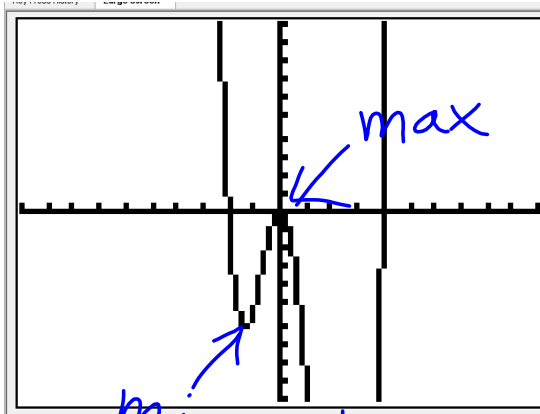
$$\text{Ex: } P(x) = (x-3)(x-3)(x-3)(x+4)$$

$$= (x-3)^3(x+4)$$

the zero, 3, has  
multiplicity 3

Maximum & minimum  
- calculator.





Minimum	x	y
	-1.386002	-6.352741

min.  
@  $x = -1.387$   
value is  
-6.353

at value

Minimum	x	y
	2.8860011	-45.33476