

Even answers p. 308

#18 1 ft increase in  
each dimension

$$(5+x), (4+x), (3+x)$$

$$(5+x)(4+x)(3+x) - 120 = 0$$

solve for  $x$

#20  $V = 12x^3 - 27x$

#22 rel. max. (2.53, 10.51)

rel. min (5.14, -7.14)

zeros: 1.5, 4, 6

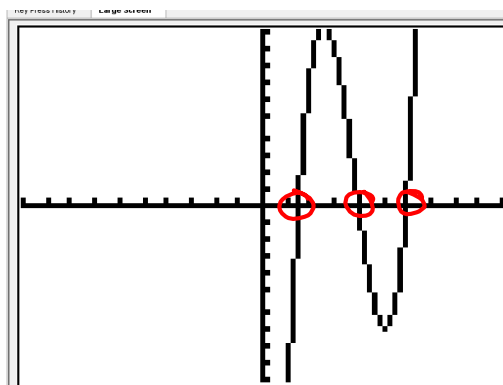
#22

Maximum	V
X=2.5316242	Y=10.507875

Minimum	X
X=5.1350391	Y=-7.137504

→

Zero	X
X=1.5	Y=0



#24 no max  
min  $(-1, -1)$   
zeros:  $-2, 0$

#26  $0, 6, -6$

#28  $-7, -0.4, 6$   
 $\downarrow$   $\uparrow$   
 $-\frac{2}{5}$  multiplicity 2

Solving by factoring:

$$\text{polynomial} = 0$$

$$(x+1)(2x-5)(x+3)^2 = 0$$

$$\text{zeros: } x = -1 \quad x = \frac{5}{2} \quad x = -3$$

$\uparrow$   
multiplicity of 2

Topic: factoring sum & difference of cubes  
ON YOUR FORMULA SHEET!

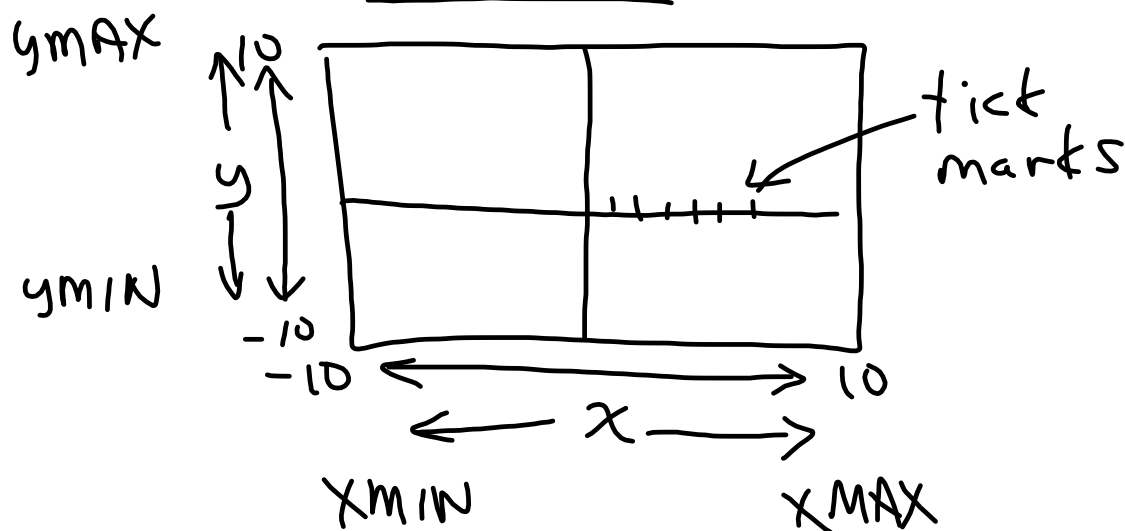
$$a^3 + b^3 = (a+b)(a^2 - ab + b^2)$$

$$a^3 - b^3 = (a-b)(a^2 + ab + b^2)$$

$$x^3 - 1000$$

$$x^3 - 10^3 = (x-10)(x^2 + 10x + 100)$$

Adjusting The Window  
standard



① change  $x_{min}$   
 $x_{max}$   
 $x_{scl}$  - tick  
mark  
distance  
 $y_{min}$   
 $y_{max}$   
 $y_{scl}$

② Zoom in/out

Zoom menu:

Set Factors

x: 2

y: 2

③ Zoom box (in)

draw box around  
part of the graph.

4. Zoom Fit  
 tries to fit  
 y maxes and  
 mins into the  
 window

#9 find solutions  
 (real or imag)

$$x^3 + 64 = 0 \quad \text{sum of cubes}$$

$$x^3 + 4^3 = 0$$

factor:  $(x+4)(x^2-4x+16)=0$

zero:  $x=-4$

$$x^2 - 4x + 16 = 0$$

completing  
 the square  
 could use quad.  
 formula.

$$x^2 - 4x + 4 = -16 + 4$$

$$(x-2)^2 = -12$$

$$x-2 = \pm\sqrt{-12}$$

zeros:  $x = 2 \pm 2i\sqrt{3}$

$$(x+4)(x - (2+2i\sqrt{3}))$$

$$(x - (2-2i\sqrt{3}))$$