MA 110 · 9/2/16

- Hwk due tonight
- Office hrs 10-11 today - POT 723
- We will only count homework from 1103

Find k so that $x^2 + 6x + k = 0$ has exactly one solution.

Want $x^2+6x+k=0$ to be a perfect square. Want $k=9$

$(x+3)^2 = 0$

$= x^2+6x+9.$

-or-

1. solution if discriminant is 0. Want

$6^2 - 4 \cdot 1 \cdot k = 0$

or $4k = 36,$

$k = 9.$

Find the line perpendicular to $x+2y=2$, thru (1,1).

or

- Find the slope of

$x+2y=2$

$2y = 2-x$

$y = 1-\frac{1}{2}x.$

Slope is $-\frac{1}{2}$

Perp. slope is $-1/(-1/2)$

$= +2.$

$y-1 = 2(x-1)$

$y = 1+2x-2$

$y = 2x-1$

Check.

Find a good window to graph

$y = x^3 - 200x + 77$.

Solve

$$\frac{x^2}{x^4 - 20} = 1.$$

$$\frac{1}{x^5 - 1} = x^2.$$

$x^2 = x^4 - 20$

$0 = x^4 - x^2 - 20$

Let $u = x^2$

$0 = u^2 - u - 20$

$0 = (u-5)(u+4)$

$u = 5$ or -4

$x^2 = 5$ or $x^2 = -4$

☹

$x = \pm\sqrt{5}$.

$$\frac{1}{x^5 - 1} = x^2$$

$$1 = x^7 - x^2$$

$$x \approx 1.1$$

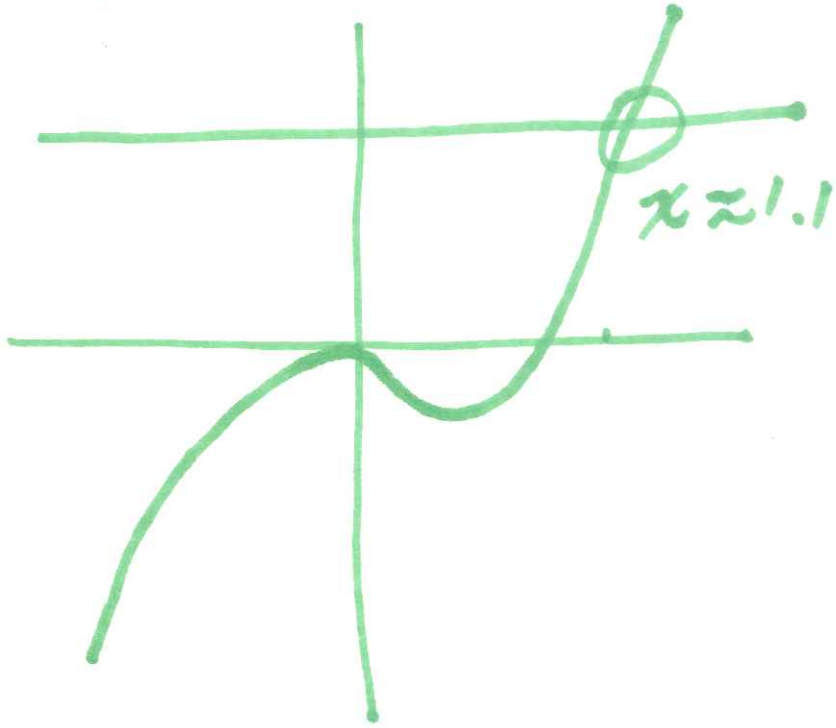
or

$$x^7 - x^2 - 1 = 0$$

Window

$x = -2 \ldots 2$

$y = -1 \ldots 2$



Trace Find $x \approx 1.1$

REEF#2.

Solve

$$2x-2=\sqrt{x^4+1}.$$

2 solutions,

1 positive.

Window

$x=-6..6,\ y=-2..9$