# Week 3 Wed 1

**Ann** Today last day to take test 1!

**Hope:** T1 graded by Monday

**Preview:** 1) a) eqn of line through $(-1,2)$ and $(4,2)$ (rec)

$y-2=0(x+1) \Rightarrow y=2$

b) eqn of line parallel to (c) through $(-4,8)$ $y=8$

c) eqn of line perpendicular to (a) through $(2,7)$

$x=2$

2) advanced: which defines $y$ as function of $x$? ($x$ input, $y$ output)

a) $(y-5)^2-25=x$

Set $x=0$, then $(y-5)^2=25$

$y-5=\pm\sqrt{25}$

$y=5\pm 5$, so $0 \to 10$

Bad.

b) $|x|-y=3$

$|x|=3+y$

$|x|-3=y$ ✓ only one value for $y$.

c) $|x|=|y|$

Note: $|1|=|1|$

and $|1|=|-1|$

So $(1,1)$ and $(1,-1)$ on curve, fails vert. line test.

d) $\frac{y^2}{3}=x$

Note $\frac{(-\sqrt{3})^2}{3}=1$

and $\frac{(\sqrt{3})^2}{3}=1$

So $(1,-\sqrt{3})$ and $(1,\sqrt{3})$ on curve

∴ not func.

3) $f(x)=\frac{x+7}{3x^2+2}$ find $f(\sqrt{y}+2)$

$$f(\sqrt{y}+2)=\frac{\sqrt{y}+2+7}{3(\sqrt{y}+2)^2+2}=\frac{\sqrt{y}+9}{3(\sqrt{y}^2+4\sqrt{y}+4)+2}$$

$$=\frac{\sqrt{y}+9}{3y+12\sqrt{y}+12+2}=\frac{\sqrt{y}+9}{3y+12\sqrt{y}+14}$$

Later more simplifying can be done.

**Content:** M3.d1

M3.d2