hw4: $A=(x_1,y_1)$, $B=\{x_2,y_2\}$, $C=(x_3,y_3)$

prove that

$$\Delta ABC\text{之面積}=\frac{1}{2}|x_1y_2+x_2y_3+x_3y_1-x_2y_1-x_3y_2-x_1y_3|$$

hw5: $w=\frac{1}{2}(-1+\sqrt{3}i)$，求 $w^{51}+w^{52}+\cdots+w^{2001}=?$ (1)

hw6: $1<x<2$，若 $\log_2 x$, $\log_2 2x$, $\log_2 x^2$ 為一直角三角形之三邊長，則 $x=?$

$2^{\frac{1+\sqrt{5}}{4}}$

hw7: ① $\sin(\alpha+\beta)\sin(\alpha-\beta)=\sin^2\alpha-\sin^2\beta=\cos^2\beta-\cos^2\alpha$

② $\cos(\alpha+\beta)\cos(\alpha-\beta)=\cos^2\alpha-\sin^2\beta=\cos^2\beta-\sin^2\alpha$

hw8: prove that

1. 二倍角公式 $\sin 2\theta=\frac{2\tan\theta}{1+\tan^2\theta}=2\sin\theta\cos\theta$

$$\cos 2\theta=\cos^2\theta-\sin^2\theta=\frac{1-\tan^2\theta}{1+\tan^2\theta}$$

2. 三倍角 $\sin 3\theta=3\sin\theta-4\sin^3\theta$

$$\cos 3\theta=4\cos^3\theta-3\cos\theta$$

3. 半角 $\sin^2\frac{\theta}{2}=\frac{1-\cos\theta}{2}$ $\cos\frac{2\theta}{2}=\frac{1+\cos\theta}{2}$

hw9: 求 $\frac{de^{\alpha x^2}}{dx}=?$ $\frac{d}{dx}(\sqrt{x+\sqrt{x}})=?$

hw10: prove that $\frac{d}{dx}[\frac{f(x)}{g(x)}]=\frac{f'(x)}{g(x)}-\frac{g'(x)f(x)}{[g(x)]^2}$