

## HƯỚNG DẪN GIẢI VÀ ĐÁP SỐ

### §1. GIÁ TRỊ LƯỢNG GIÁC CỦA MỘT GÓC BẤT KÌ TỪ $0^\circ$ ĐẾN $180^\circ$

- 2.1.** a)  $\sin \alpha$  và  $\cos \alpha$  cùng dấu khi :  $0^\circ < \alpha < 90^\circ$   
b)  $\sin \alpha$  và  $\cos \alpha$  khác dấu khi :  $90^\circ < \alpha < 180^\circ$   
c)  $\sin \alpha$  và  $\tan \alpha$  cùng dấu khi :  $0^\circ < \alpha < 90^\circ$   
d)  $\sin \alpha$  và  $\tan \alpha$  khác dấu khi :  $90^\circ < \alpha < 180^\circ$ .
- 2.2.** a)  $\sin 120^\circ = \frac{\sqrt{3}}{2}$  ;  $\cos 120^\circ = -\frac{1}{2}$  ;  $\tan 120^\circ = -\sqrt{3}$  ;  $\cot 120^\circ = -\frac{1}{\sqrt{3}}$  .  
b)  $\sin 150^\circ = \frac{1}{2}$  ;  $\cos 150^\circ = -\frac{\sqrt{3}}{2}$  ;  $\tan 150^\circ = -\frac{\sqrt{3}}{3}$  ;  $\cot 150^\circ = -\sqrt{3}$  .  
c)  $\sin 135^\circ = \frac{\sqrt{2}}{2}$  ;  $\cos 135^\circ = -\frac{\sqrt{2}}{2}$  ;  $\tan 135^\circ = -1$  ;  $\cot 135^\circ = -1$ .

b)  $B = \sin^4 \alpha - \cos^4 \alpha - 2 \sin^2 \alpha + 1$   
 $= (\sin^2 \alpha + \cos^2 \alpha)(\sin^2 \alpha - \cos^2 \alpha) - 2 \sin^2 \alpha + 1$   
 $= 1[\sin^2 \alpha - (1 - \sin^2 \alpha)] - 2 \sin^2 \alpha + 1 = 0.$

$$2.3. \quad \text{a) } 2 \cdot \frac{1}{2} + 3 \cdot \frac{\sqrt{2}}{2} - \frac{\sqrt{3}}{2} = 1 + \frac{3\sqrt{2} - \sqrt{3}}{2};$$

$$\text{b) } 2 \cdot \frac{\sqrt{3}}{2} + 3 \cdot \frac{\sqrt{2}}{2} - \frac{1}{2} = \frac{2\sqrt{3} + 3\sqrt{2} - 1}{2}.$$

$$2.4. \quad \text{a) } 4a^2 \cdot \frac{1}{4} + 2ab \cdot 1 + \frac{4}{3}b^2 \cdot \frac{3}{4} = a^2 + 2ab + b^2 = (a+b)^2;$$

$$\text{b) } (a \cdot 1 + b \cdot 1)(a \cdot 1 + b \cdot (-1)) = (a+b)(a-b) = a^2 - b^2.$$

$$2.5. \quad \text{a) } A < B; \quad \text{b) } C = D.$$

$$2.6. \quad \cos \alpha = -\frac{\sqrt{15}}{4}; \quad \tan \alpha = -\frac{\sqrt{15}}{15}.$$

$$2.7. \quad \sin \alpha = \frac{\sqrt{14}}{4}; \quad \tan \alpha = -\sqrt{7}.$$

$$2.8. \quad \sin \alpha = \frac{2\sqrt{2}}{3}; \quad \cos \alpha = \frac{1}{3}.$$

$$2.9. \quad A = 7 - 4\sqrt{2}.$$

$$2.10. \quad B = \frac{1}{9}.$$

$$2.11. \quad \text{a) } (\sin x + \cos x)^2 = \sin^2 x + \cos^2 x + 2\sin x \cos x \\ = 1 + 2\sin x \cos x.$$

$$\text{b) } (\sin x - \cos x)^2 = \sin^2 x + \cos^2 x - 2\sin x \cos x \\ = 1 - 2\sin x \cos x.$$

$$\text{c) } \sin^4 x + \cos^4 x = (\sin^2 x)^2 + (\cos^2 x)^2 + 2\sin^2 x \cos^2 x - 2\sin^2 x \cos^2 x \\ = (\sin^2 x + \cos^2 x)^2 - 2\sin^2 x \cos^2 x \\ = 1 - 2\sin^2 x \cos^2 x.$$

$$2.12. \quad \text{a) } A = (\sin \alpha + \cos \alpha)^2 + (\sin \alpha - \cos \alpha)^2 \\ = 1 + 2\sin \alpha \cos \alpha + 1 - 2\sin \alpha \cos \alpha \\ = 2.$$