

Le. 2 Practice

$$(a) \frac{\sin 2\theta}{2\sin\theta} \rightarrow \text{identity} \quad \frac{\cancel{2}\sin\theta\cos\theta}{\cancel{2}\sin\theta} = \cos\theta$$

$$(b) \cos 3x \cos x - \sin 3x \sin x \quad (\text{identity})$$

$$\cos(A+B)$$

$$\cos(3x+x) = \cos 4x$$

$$(c) \frac{(\cos 2\theta) - 1}{2\sin\theta} = \frac{1 - 2\sin^2\theta - 1}{2\sin\theta}$$

$$= \frac{-\cancel{2}\sin^2\theta}{\cancel{2}\sin\theta} = -\sin\theta$$

$$6d) \frac{\sin^3 x}{\cos 2x - \cos^2 x}$$

double angle

$\frac{\sin^3 x}{\cancel{\cos^2 x} - \sin^2 x - \cancel{\cos^2 x}}$ $-\frac{\sin^3 x}{\sin^2 x} = -\sin x$	$\frac{\sin^3 x}{1 - 2\boxed{\sin^2 x} - \cos^2 x}$ <p style="text-align: center; color: red;">$2(1 - \cos^2 x)$</p>	$\frac{\sin^3 x}{2\cos^2 x - 1 - \cos^2 x}$ $\frac{\sin^3 x}{\cos^2 x - 1}$ $\frac{\sin^3 x}{-\sin^2 x} \leftarrow$
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7b) $\tan 15^\circ$ (EXACT)

$\tan(60 - 45)$

$$\tan(A - B) = \frac{\tan A - \tan B}{1 + \tan A \tan B}$$

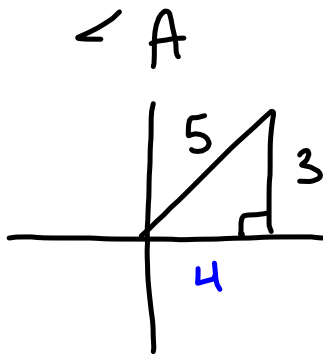
$$= \frac{\tan 60 - \tan 45}{1 + (\tan 60)(\tan 45)}$$

$$= \frac{\sqrt{3} - 1}{1 + (\sqrt{3})(1)} = \frac{(\sqrt{3} - 1) \cdot (1 - \sqrt{3})}{1 + \sqrt{3} \cdot 1 - \sqrt{3}} \cdot \frac{1 - \sqrt{3}}{1 - \sqrt{3}}$$

$$= \frac{\sqrt{3} - 3 - 1 + \sqrt{3}}{1 - 3}$$

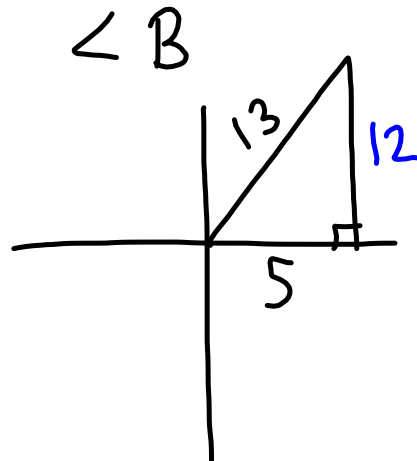
$$= \frac{2\sqrt{3} - 4}{-2} = -\sqrt{3} + 2$$

9 // $\angle A$ & $\angle B$ in Quadrant I



$$\sin A = \frac{3}{5}$$

$$\cos A = \frac{4}{5}$$



$$\cos B = \frac{5}{13}$$

$$\sin B = \frac{12}{13}$$

a) $\cos(A-B)$

$$\boxed{\cos(A-B) = \cos A \cos B + \sin A \sin B}$$

$$\left(\frac{4}{5}\right)\left(\frac{5}{13}\right) + \left(\frac{3}{5}\right)\left(\frac{12}{13}\right)$$

$$\frac{20}{65} + \frac{36}{65} = \frac{56}{65}$$