Name: _____ **Class:** _____ **Date:** _____ **ID: A**

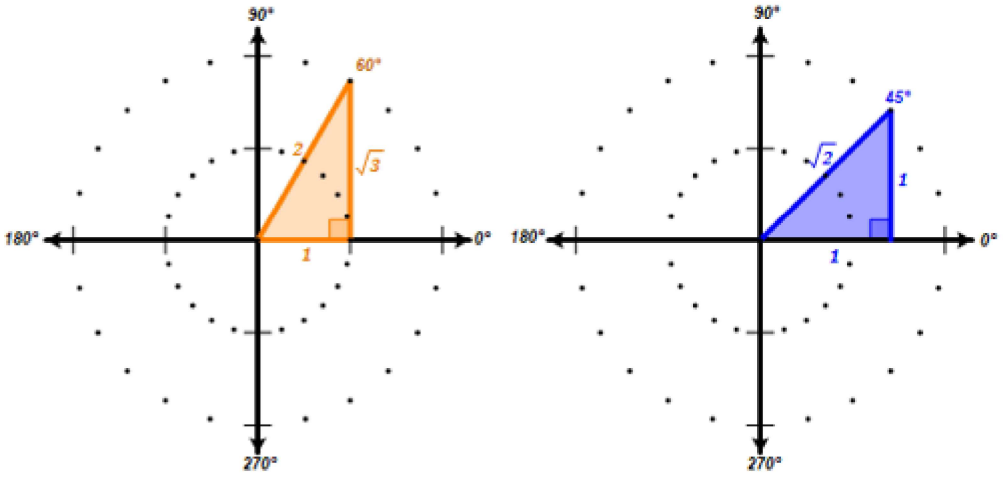
Section 04-02 - Sample Quiz - Sum & Diff Identities

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. Find the exact value of $\sin(105°)$ using the sum and difference identities.

$$\sin(\alpha \pm \beta) = \sin\ \alpha \cos \beta \pm \cos \alpha \sin\ \beta$$

Use the diagrams below to assist you.



a. $\dfrac{\sqrt{2}+\sqrt{6}}{4}$

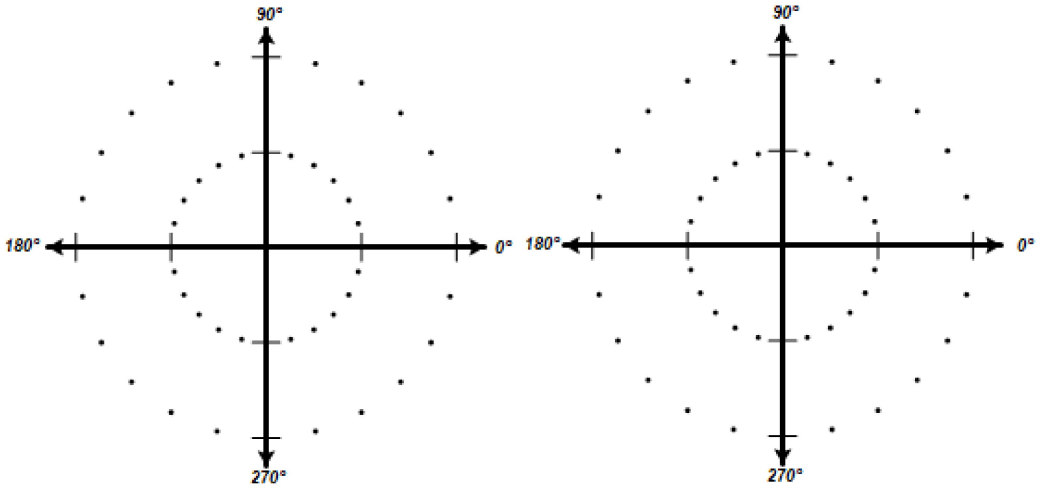
b. $\dfrac{\sqrt{2}-\sqrt{6}}{4}$

c. $\dfrac{\sqrt{6}-\sqrt{2}}{4}$

d. $\dfrac{-\sqrt{2}-\sqrt{6}}{4}$

____ 2. Find the exact value of $\cos\left(\frac{\pi}{12}\right)$ using the sum and difference identities.

$\cos(\alpha \pm \beta) = \cos\alpha\cos\beta \mp \sin\alpha\sin\beta$



a. $\frac{\sqrt{2}+\sqrt{6}}{4}$

b. $\frac{\sqrt{2}-\sqrt{6}}{4}$

c. $\frac{\sqrt{6}-\sqrt{2}}{4}$

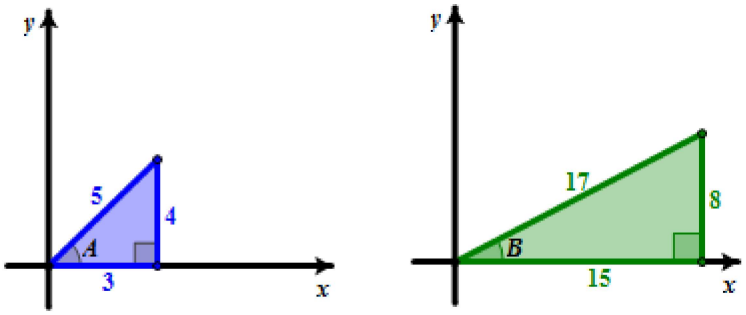
d. $\frac{-\sqrt{2}-\sqrt{6}}{4}$

____ 3. Given $\sin(A) = \frac{4}{5}$ and $\cos(B) = \frac{15}{17}$, using the sum and difference identities determine the value of

$\cos(A+B)$

$\cos(\alpha \pm \beta) = \cos\alpha\cos\beta \mp \sin\alpha\sin\beta$

(You may assume angles A and B exist in the first quadrant)



a. $\frac{11}{17}$

b. $\frac{12}{17}$

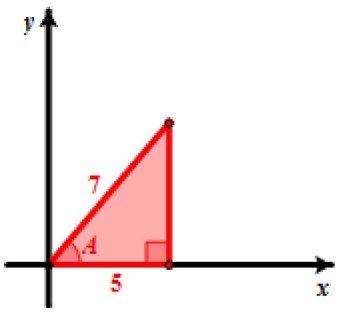
c. $\frac{13}{85}$

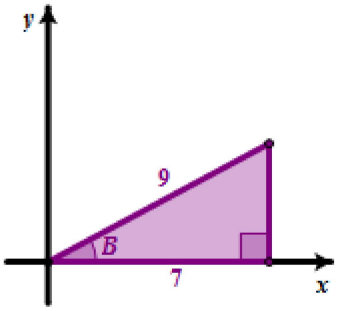
d. $\frac{77}{85}$

____ 4. Given $\cos(A) = \frac{5}{7}$ and $\cos(B) = \frac{7}{9}$,
using the sum and difference identities determine the value of $\sin(A + B)$

$$\sin(\alpha \pm \beta) = \sin\alpha\cos\beta \pm \cos\alpha\sin\beta$$

(You may assume angles A and B exist in the first quadrant)





a. $\frac{14\sqrt{6} - 20\sqrt{2}}{63}$

b. $\frac{14\sqrt{6} + 20\sqrt{2}}{63}$

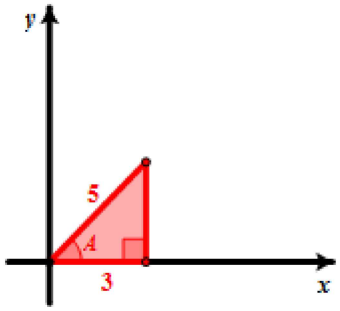
c. $\frac{10\sqrt{6} - 28\sqrt{2}}{63}$

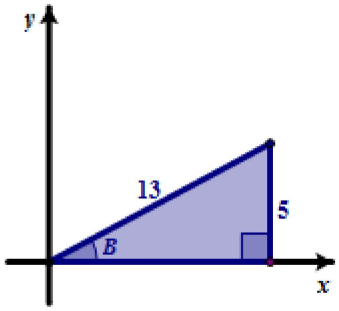
d. $\frac{10\sqrt{6} + 28\sqrt{2}}{63}$

____ 5. Given $\cos(A) = \frac{3}{5}$ and $\sin(B) = \frac{5}{13}$,
using the sum and difference identities determine the value of $\tan(A + B)$

$$\tan(\alpha \pm \beta) = \frac{\tan\alpha \pm \tan\beta}{1 \mp \tan\alpha\tan\beta}$$

(You may assume angles A and B exist in the first quadrant)





a. $\frac{16}{63}$

b. $\frac{63}{16}$

c. $\frac{9}{7}$

d. $\frac{7}{9}$