LAST NAME: FIRST NAME:

NO CALCULATOR (EXCEPT 4-FUNCTION) CAN BE USED WHILE WORKING ON THESE QUESTIONS. STATE ANSWERS WITH FRACTIONS IN LOWEST TERMS AND SIMPLIFIED RADICANDS.

NO CALCULATOR CAN BE USED WHILE WORKING ON THESE QUESTIONS.

1 (6 points)**.** Find the exact value of each expression:

(a) $\tan^{-1}(1)$

(b) $\sin^{-1}(-1/2)$

(c) $\cos^{-1}(\sqrt{3}/2)$

(d) $\sin^{-1}(\sin(-7\pi/4))$

(e) $\cos^{-1}(\cos(2\pi/3))$

(f) $\cot^{-1}(\cot(-5\pi/6))$

2 (4 points)**.** Find $\cos(\phi/2)$ given that $\cos(\phi) = \dfrac{7}{25}$ and ϕ is an angle between $\dfrac{3\pi}{2}$ and 2π.

State the answer in a simplified form, do not round.

3 (5 points). Find $\cos(\alpha+\beta)$ given that:

$\cos(\alpha)=-1$ $\cos(\beta)=\frac{3}{5}$ $\sin(\beta)=\frac{-4}{5}$

State the answer in a simplified form, do not round.

4 (5 points). Find $\sin(\theta-\delta)$ given that:

$\cos(\theta)=\frac{1}{2}$ $\sin(\theta)=-\frac{\sqrt{3}}{2}$ $\cos(\delta)=\frac{1}{3}$ $\sin(\delta)=\frac{2\sqrt{2}}{3}$

State the answer in a simplified form, do not round.

TOTAL POINTS: 20