

Math 42 Midterm 3 Review[0] **Consult your textbook**

[1] [a] 1

[d] 0

[g] $\frac{2-\sqrt{3}}{4}$

[j] $-\frac{1}{2}$

[b] $-\sin x \tan x$

[e] $-\frac{3}{2}$

[h] $2\sqrt{3}$

[c] $\sec x \csc x$

[f] $\frac{5\sqrt{2}}{2}$

[i] $\frac{\sqrt{3}}{2}$

[2] [a] $-\frac{24}{25}$

[d] $\frac{6\sqrt{2}-5}{14}$

[g] $-\frac{4+6\sqrt{6}}{25}$

[b] $\frac{6\sqrt{6}-20}{15-8\sqrt{6}} = -\frac{588+250\sqrt{6}}{159}$

[e] $\frac{\sqrt{42}}{6}$

[h] $\frac{35}{15+8\sqrt{6}} = \frac{35(8\sqrt{6}-15)}{159}$

[c] $-\frac{\sqrt{7}}{7}$

[f] $20\sqrt{6}$

[i] $-\frac{7}{25}$

[3] [a] $\frac{1}{8}(3-4\cos 2x + \cos 4x)$

[b] $\frac{1}{16}(1 + \cos 2x - \cos 4x - \cos 2x \cos 4x)$

[4] [a] $3\sin x - 4\sin^3 x$

[b] $\frac{4\tan x - 4\tan^3 x}{1-6\tan^2 x + \tan^4 x}$

[c] $8\cos^4 x - 8\cos^2 x + 1$

[5] [a] $\frac{10\sqrt{2}+6\sqrt{5}}{35}$

[b] $\frac{3}{5}$

[c] $\frac{2+2\sqrt{10}}{4\sqrt{2}-\sqrt{5}} = \frac{2(\sqrt{2}+\sqrt{5})}{3}$

[6] Solve the following equations.

[a] $x = \frac{5\pi}{6} + n\pi$

[d] $x = \frac{\pi}{2} + 3n\pi$

[b] $x = \frac{7\pi}{6} + 2n\pi \quad \text{OR} \quad \frac{11\pi}{6} + 2n\pi$

[e] $x = \frac{4\pi}{3} + 2n\pi \quad \text{OR} \quad \frac{5\pi}{3} + 2n\pi$
 $\text{OR} \quad \frac{\pi}{2} + n\pi$

[c] $x = \frac{3\pi}{16} + \frac{n\pi}{2} \quad \text{OR} \quad \frac{5\pi}{16} + \frac{n\pi}{2}$

[f] $x = 4n\pi \quad \text{OR} \quad 2\pi - 2\cos^{-1}\frac{1}{4} + 4n\pi$
 $\text{OR} \quad 2\pi + 2\cos^{-1}\frac{1}{4} + 4n\pi$ **OR**
 $x = 4n\pi \quad \text{OR} \quad 3.647 + 4n\pi$
 $\text{OR} \quad 8.919 + 4n\pi$