

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

[1] [a] 1	[b] $-\sin x \tan x$	[c] $\sec x \csc x$
[d] 0	[e] $-\frac{3}{2}$	[f] $\frac{5\sqrt{2}}{2}$
[g] $\frac{2-\sqrt{3}}{4}$	[h] $2\sqrt{3}$	[i] $\frac{\sqrt{3}}{2}$
[j] $-\frac{1}{2}$		

[2] [a] $-\frac{24}{25}$	[b] $\frac{6\sqrt{6}-20}{15-8\sqrt{6}} = -\frac{588+250\sqrt{6}}{159}$	[c] $-\frac{\sqrt{7}}{7}$
[d] $\frac{6\sqrt{2}-5}{14}$	[e] $\frac{\sqrt{42}}{6}$	[f] $20\sqrt{6}$
[g] $-\frac{4+6\sqrt{6}}{25}$	[h] $\frac{35}{15+8\sqrt{6}} = \frac{35(8\sqrt{6}-15)}{159}$	[i] $-\frac{7}{25}$

[3] [a] $\frac{1}{8}(3-4\cos 2x + \cos 4x)$	[b] $\frac{1}{16}(1 + \cos 2x - \cos 4x - \cos 2x \cos 4x)$
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[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] $8\cos^4 x - 8\cos^2 x + 1$
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[5] [a] $\frac{10\sqrt{2}+6\sqrt{5}}{35}$	[b] $\frac{3}{5}$	[c] $\frac{2+2\sqrt{10}}{4\sqrt{2}-\sqrt{5}} = \frac{2(\sqrt{2}+\sqrt{5})}{3}$
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[6] Solve the following equations.

[a] $x = \frac{5\pi}{6} + n\pi$	[b] $x = \frac{7\pi}{6} + 2n\pi$ OR $\frac{11\pi}{6} + 2n\pi$	[c] $x = \frac{3\pi}{16} + \frac{n\pi}{2}$ OR $\frac{5\pi}{16} + \frac{n\pi}{2}$
[d] $x = \frac{\pi}{2} + 3n\pi$	[e] $x = \frac{4\pi}{3} + 2n\pi$ OR $\frac{5\pi}{3} + 2n\pi$ OR $\frac{\pi}{2} + n\pi$	[f] $x = 4n\pi$ OR $2\pi - 2\cos^{-1}\frac{1}{4} + 4n\pi$ OR $2\pi + 2\cos^{-1}\frac{1}{4} + 4n\pi$ <b>OR</b> $x = 4n\pi$ OR $3.647 + 4n\pi$ OR $8.919 + 4n\pi$