MATHEMATICS 3

NAME:	
DATE:	LECTURER:

SIGNATURE:

Problem	Points
1. (6p)	
2. (6p)	
3. (6p)	
Σ	

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1. Solve the boundary value problem

$$u'' + 4u = 3\sin(x),$$
$$u(0) = 2,\ u(\tfrac{\pi}{4}) = -3 + \tfrac{\sqrt{2}}{2}.$$

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2. Decide on the solvability of the boundary value problem

$$u'' + 4u = \sin^2(x),$$
$$u(0) = 0,\ u(\pi) = 0.$$

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3. Solve the boundary value problem

$$u'' + 16u = 0,$$
$$u(0) = 1,\ u(\pi) = \alpha.$$

with respect to a real parameter α.
