

Exam 2 Fall 22 Key

Form	A	B
1	D	A
2	D	A
3	D	D
4	C	A
5	C or D	D
6	D	B
7	B	A
8	B	C or D
9	D	B
10	E	B
11	E	C
12	B	B

Free Response

1. $-x$ or x

2. $W = e^{-4t}$

$$W_1 = -t^{-1}e^{-4t}$$

$$W_2 = t^{-2}e^{-4t}$$

$$v_1 = -\ln t$$

$$v_2 = -1/t$$

$$y_g(t) = c_1e^{-2t} + c_2te^{-2t} - \ln te^{-2t}$$

3. a. $y_g(t) = -(1/4)e^{-5t} \sin(2t)$

b. $y_g(t) = -(1/2\sqrt{29}) \sin(\sqrt{29}t)$

c. decrease

d. opposite

e. decrease

f. taking energy out

4. $y_g(x) = -(3/10) \cos x + (2/5) \sin x + (x/2 + 3/10)e^{-3x}$