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## Test: Functions

07.10.24

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Start time: 4:14 pm

End time: 4:33 pm

1.

a) transformation of 4 unit to the right M1  
 $= -0.796$  A1

b) horizontal stretch by  $\frac{1}{2}$  M1

$$\frac{-1.796}{2} = -0.898$$
M1A1

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2.

$$2. \quad f(x) - g(x) = 0$$

$$\frac{x+4}{x+1} - \frac{x-2}{x-4} = 0 \quad \checkmark \quad \text{M1}$$

$$\frac{(x+4)(x-4) - (x-2)(x+1)}{(x+1)(x-4)} = 0 \quad \checkmark$$

$$\frac{x^2 - 16 - (x^2 + x - 2)}{(x+1)(x-4)} = 0 \quad \checkmark$$

$$\frac{x - 14}{(x+1)(x-4)} = 0 \quad \checkmark \quad \text{A1}$$

$$\begin{array}{c} \text{---} \bullet \text{---} \bullet \text{---} \bullet \text{---} \\ \text{---} -1 \quad 4 \quad 14 \text{---} \end{array} \quad \checkmark \quad \text{A1A1}$$

$$x < -1 \quad \text{or} \quad 4 < x \leq 14 \quad \checkmark \quad \text{A1A1}$$

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3. N/A

6. N/A

$$4. \quad f(2) = f(-1)$$

$$f(2) = 8 + 12 + 2a + b \quad \checkmark \quad \text{M1}$$

$$= 2a + b + 20 \quad \checkmark \quad \text{A1}$$

$$f(-1) = -1 + 3 - a + b \quad \checkmark \quad \text{M1}$$

$$= -a + b + 2 \quad \checkmark \quad \text{A1}$$

$$2a + b + 20 = -a + b + 2 \quad \checkmark \quad \text{A1}$$

$$\text{Ex } 3a = 2 - 20$$

$$3a = -18 \quad \checkmark \quad \text{A1}$$

$$(a = -6)$$

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