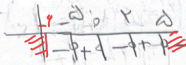
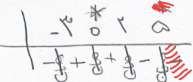


$x f(x) > 0 \Rightarrow$  $\Rightarrow [-1, 0] \cup [2, 3]$

✓

$-x > 0 \Rightarrow x < 0$
 $f(x) > 0$
 $d = \sqrt{\frac{-x}{f(x)}}$

$\frac{-1}{-1} > 0 \Rightarrow \frac{-1}{-1} > 0$  $\Rightarrow (-1, 0) \cup (2, 3)$

✓

$f(x) - 2f(x) = x^2 - 2x + 4 \Rightarrow f(x) > f(x) - 2f(x) = x^2 - 2x + 4$
 $f(-1) \Rightarrow f(-1) - 12 = 1 + 4 - 12 = -7$

✓

$f(f(x)) = f(f(x)) \Rightarrow f(x) = x - \sqrt{x^2 + 4} = 2$
 $f(x) = 2 \Rightarrow x^2 + 4 = 2 \Rightarrow x^2 = -2$
 $f(1) = 1 + 3 = 4 \Rightarrow f(4) = 2 \Rightarrow 4 + 3 = 7$

✓

$f(x) = ax^2 + bx + c \Rightarrow f(x+1) = a(x+1)^2 + b(x+1) + c$
 $a(x+1)^2 + b(x+1) + c = a(x^2 + 2x + 1) + b(x+1) + c$
 $a(x^2 + 2x + 1) + b(x+1) + c = ax^2 + 2ax + a + bx + b + c$
 $a(x^2 + 2x + 1) + b(x+1) + c = ax^2 + (2a+b)x + (a+b+c)$
 $a(x^2 + 2x + 1) + b(x+1) + c = ax^2 + (2a+b)x + (a+b+c)$
 $a(x^2 + 2x + 1) + b(x+1) + c = ax^2 + (2a+b)x + (a+b+c)$
 $a(x^2 + 2x + 1) + b(x+1) + c = ax^2 + (2a+b)x + (a+b+c)$

✓

$$\frac{xf(x) - f(-1)}{f'(x)} \Rightarrow f(x) = 9 - 9 + 1 = 1$$

$$f'(x) \quad f(-1) = 1 + 9 + 1 = 11 \Rightarrow \frac{1 + 11}{1} = 12$$

$$f(x) = 1 - 9 + 1 = -7$$

Ⓟ ✓

$$\frac{xf(x) - f(-1)}{f'(x)} \Rightarrow f(x) = 11 + 1 = 12$$

$$f(-1) = 1 \Rightarrow \frac{19 - 1}{1} = \frac{18}{1} = 18$$

$$f(x) = 4 + 1 = 5$$

Ⓟ ✓

$$\frac{f\left(\frac{1}{f(x)}\right) - f\left(\frac{1}{f(x)}\right)}{f(x) - 1} = \frac{0}{1} = 0$$

Ⓟ ✓

$$f(f(\sqrt{x} - 1)) \Rightarrow f(\sqrt{x} - 1) = \frac{(\sqrt{x} - 1)^2 + 1}{(\sqrt{x} - 1)^2 + 1} = \frac{1}{1} = 1$$

$$\frac{x^2 + 1}{x^2 + 1} \Rightarrow \frac{x^2 + 1}{x^2 + 1} = \frac{(x+1)^2 + 1}{(x+1)^2 + 1}$$

$$f(x) = \frac{(x)^2 + 1}{(x)^2 + 1} = \frac{1}{1} = 1$$

Ⓟ ✓

$$(f(\sqrt{x}))^2 - f(x) \Rightarrow f(\sqrt{x}) = \frac{x^2 + 1}{x^2 + 1} = \frac{x^2 + 1}{x^2 + 1} \Rightarrow \left(\frac{x^2 + 1}{x^2 + 1}\right)^2$$

$$f(x) = x^2 + \frac{1}{x^2} \Rightarrow \left(\frac{x^2 + 1}{x^2}\right)^2 = \frac{x^4 + 1}{x^4} \Rightarrow \frac{x^4 + 1}{x^4} = \frac{x^4 + 1}{x^4} = 1$$

Ⓟ ✓