

$$x f(x) \geq 0$$

$$D_f = [-\infty, 0] \cup [2, \infty]$$

x	$-$	0	$+$	$+$	$+$	$+$
$f(x)$	$+$	0	$-$	0	$+$	$+$
$xf(x)$	$+$	0	$-$	0	$+$	$+$

✓

$$\frac{-x}{f(x)} \geq 0$$

x	$-$	0	$+$	$+$	$+$
$f(x)$	$-$	0	$+$	0	$+$
$\frac{-x}{f(x)}$	$+$	0	$-$	0	$-$

$$D_f = (-\infty, 0) \cup (0, 2)$$

✓

$$f(x) \rightarrow f(x) - y f(y) = x - y + x$$

$$f(y) = -y$$

$$f(-y) \rightarrow f(-y) - y f(-y) = x + y + x$$

$$f(-y) = 1$$

✓

$$f(f(1)) \rightarrow f(1) = 1 \rightarrow f(1) = 1 - 5 \cdot 1 = -4$$

$$f(f(2)) \rightarrow f(2) = 2 \rightarrow f(2) = 2 - 5 \cdot 2 = -8$$

$$y_1 y_2 = 9$$

✓

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

$$f(x) = ax^2 - bx + c$$

$$-2ax + a + b + c = 2x + 2$$

$$-2a = 2$$

$$a = -1$$

$$a + b = 2 \rightarrow b = 3$$

✓

$$f(v) = 1$$

$$f(1) = 2$$

$$f(v) = -1$$

$$\frac{v(1) + \infty}{(-1)^v} = \sqrt{v}$$

Q ✓

$$f(\varepsilon) = 11$$

$$f(v) = v$$

$$f(-v) = \varepsilon$$

$$\frac{v \times 11 - v \times \varepsilon}{v} = \frac{v11}{v}$$

Q ✓

$$\frac{f(\overbrace{f(\varepsilon))}^v) - f(\overbrace{f(v)}^v)}{\overbrace{f(1)}^v - v} = 0$$

Q ✓

$$\frac{(\overbrace{5\varepsilon})^v + \varepsilon(\overbrace{5\varepsilon - v})^v}{(\overbrace{5\varepsilon - v})^v + \varepsilon(\overbrace{5\varepsilon - v})^v} = \frac{v + \varepsilon - \varepsilon 5\varepsilon + \varepsilon 5\varepsilon - v + v}{v + \varepsilon - \varepsilon 5\varepsilon + \varepsilon 5\varepsilon - v + v} = \frac{v}{\varepsilon} = v$$

$$f(v) = \frac{\varepsilon + v + v}{\varepsilon + v + v} = \frac{v1}{1v}$$

Q ✓

$$f(\sqrt{v}) = v + \frac{1}{v}$$

$$(v + \frac{1}{v})^v - (v + \frac{1}{2v}) = v^v + \frac{1}{v1} + v - 2v^v - \frac{1}{2v} = v$$

Q ✓