

1) $12a+14 = 12a-4 + a \rightarrow 14a+4a-4 \rightarrow 18a = -18 \rightarrow a = -\frac{18}{18}$

$f(x) = (a+1)x + 7 \rightarrow 7a+7$ $f(-1) = 12a + (-4) = 12a-4$

2) $(2-\sqrt{3})(2+\sqrt{3}) = 4 - 3 = 1 \rightarrow \sqrt{\frac{4}{3}} = \frac{2}{\sqrt{3}}$
 $f(x) = \sqrt{x+3} + 2$ $f(x)f(y) = (\sqrt{x+3}+2)(\sqrt{y+3}+2)$
 $(2-\sqrt{3})(2+\sqrt{3}) = 4 - 3 = 1$

3) $2f(x) - 3f(-x) = 4x^2 - 6x$ $2f(x) - 3f(-x) = 4x^2 - 6x$
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4) $2f(0) = 3m-1 \rightarrow \frac{3m-1}{2} = f(0)$
 $4f(0) = 14m-1 \rightarrow 4f(0) = 14m-1$
 $f(0) = \frac{3(\frac{1}{2})-1}{2} \rightarrow \frac{1.5-1}{2} = \frac{0.5}{2} = \frac{1}{4}$

5) $\frac{a}{x} + b = f(\frac{1}{x})$ $f(x) + f(\frac{1}{x}) = ax+b + \frac{a}{x} + b$
 $a=2$ $b=-1$ $f(x) = 2x - 1$

6) $f(x) = 2x - 1$ $f(1) = 2(1) - 1 = 1$
 $g(x) = 2x - 1$ $g(1) = 2(1) - 1 = 1$

7) $f(x) \rightarrow 2x - 1$ $f(1) = 1$
 $g(x) \rightarrow 2x - 1$ $g(1) = 1$

$1) f(x) \rightarrow \text{لنا} \rightarrow x=0 \checkmark$ تابع مستمر
 $g(x) \rightarrow x=0 \checkmark$ تابع مستمر
 $\boxed{f \cdot g} \rightarrow f(x) \rightarrow \sqrt{x} - \sqrt{x} \rightarrow \sqrt{x} - \sqrt{x} \rightarrow 0$ تابع مستمر
 $x=1 \rightarrow x=1 \rightarrow x=1$

$2) f(1)=2 \quad g(1)=1$
 (الف) $\frac{f(1)+g(1)}{f(1)-g(1)} = \frac{2+1}{2-1} = 3$

$\text{ج) } f(x) \rightarrow 0$
 $g(-1) = 1$
 $0 \times 1 \rightarrow 0$

ب) $f(x)=3 \quad g(x)=3$
 $f(x)-g(x) \rightarrow 0$ تصريف مستمر

$x=1 \rightarrow f(x) \rightarrow 2 \quad x=1 \rightarrow g(x) = -2 \rightarrow g(-\frac{1}{x}) = f(x) = 2$
 (الـ) $\rightarrow \{(-\frac{1}{x}, 2) \text{ و } (0, 4) \text{ و } (\frac{1}{x}, 2) \text{ و } (1, 1) \text{ و } (-1, 1)\}$

ب) $x \rightarrow 0 \rightarrow 2 \text{ و } 3 \rightarrow (0, 2) \text{ و } (0, 3) \rightarrow \{(-3, -1) \text{ و } (-2, 1) \text{ و } (0, 3) \text{ و } (1, 1) \text{ و } (3, -1)\}$