Section 6.6 Function Operations

$(f+g)(x)$ means $f(x)+g(x)$

$f(x) = x^2+2x+4$

$g(x) = -2x^2-x+3$

$(f+g)(x)$
$=(x^2+2x+4)+(-2x^2-x+3)$
$= x^2+2x+4-2x^2-x+3$
$= x^2-2x^2+2x-x+4+3$
$= -x^2+x+7$

$(f-g)(x)$ means $f(x)-g(x)$ distribute the negative

$f(x)=2x-4$

$g(x)=3x-1$

$(f-g)(x)$
$=(2x-4)-(3x-1)$
$2x-4-3x+1$
$2x-3x-4+1$
$= -x-3$

$(f\cdot g)(x)$ means $f(x)\cdot g(x)$

$f(x)=x+2$

$g(x)=3x-1$

$(f\cdot g)(x)$
$=(x+2)(3x-1)$
$= 3x^2-x+6x-2$
$= 3x^2+5x-2$

$\left(\frac{f}{g}\right)(x)$ means $\frac{f(x)}{g(x)}$

$x+4=0$
$-4\ \ -4$
$x=-4$

$f(x)=x^2-16$

$g(x)=x+4$

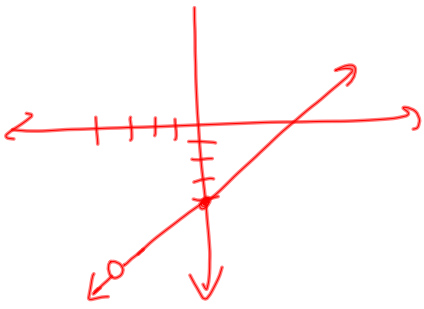
$\frac{25}{15}=\frac{5\cdot 5}{3\cdot 5}$

$\left(\frac{f}{g}\right)(x)$ $1\cdot 16$, $2\cdot 8$, $-4\cdot -4$

$=\frac{(x^2-16)}{(x+4)},\quad x\neq -4$

$=\frac{(x-4)(x+4)}{(x+4)}$

$= x-4,\ x\neq -4$



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Sec. 6.5

$$\left(\sqrt{x+5}\right)^2 = (7)^2$$

$$x + 5 = 49$$
$$-5 \quad -5$$

$$x = 44$$

$$\sqrt{x-7} + 3 = 12$$
$$-3 \quad -3$$

$$\left(\sqrt{x-7}\right)^2 = 9^2$$

$$x - 7 = 81$$
$$+7 \quad +7$$

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