e) $\left(\sqrt{2x+6}\right)^2 = \left(-3+\sqrt{-3-4x}\right)^2$

$2x+6 = (-3+\sqrt{-3-4x})(-3+\sqrt{-3-4x})$

$2x+6 = 9-6\sqrt{-3-4x}+-3-4x$

$2x+6 = 6-6\sqrt{-3-4x}-4x$

$+4x \quad -6 \quad -6 \quad +4x$

$\frac{6x}{-6} = \frac{-6\sqrt{-3-4x}}{-6}$

$(-x)^2 = \left(\sqrt{-3-4x}\right)^2$

$x^2 = -3-4x$

$x^2+4x+3 = (x+1)(x+3) = 0$

$x+1=0 \qquad x = -1, -3$

$x+3=0$

② a) $\frac{1}{\sqrt{2x-5}}$

$2x-5>0$

$\frac{2x}{2} > \frac{5}{2}$

$\{x \mid x > \frac{5}{2}\}$

x^2+2x-7

$\mathbb{R}$

① c) $6\left|\frac{x}{3}+\frac{1}{5}\right|-2 \geq 4$

isolate!

$+2 \quad +2$

$$\frac{6\left|\frac{x}{3}+\frac{1}{5}\right|}{6} \geq \frac{6}{6}$$

$$\left|\frac{x}{3}+\frac{1}{5}\right| \geq 1$$

THINK! GREATOR

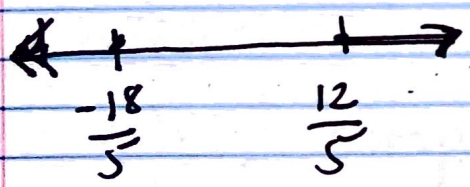
SPLIT!

$\frac{x}{3}+\frac{1}{5} \geq 1$ OR $\frac{x}{3}+\frac{1}{5} \leq -1$

$-\frac{1}{5} \quad -\frac{1}{5} \qquad -\frac{1}{5} \quad -\frac{1}{5}$

$3 \cdot \frac{x}{3} \geq \frac{4}{5} \cdot 3$ OR $3 \cdot \frac{x}{3} \leq \frac{-6}{5} \cdot 3$

$x \geq \frac{12}{5}$ OR $x \leq -\frac{18}{5}$



$\left\{x \mid x \leq \frac{-18}{5} \text{ OR } x \geq \frac{12}{5}\right\}$

a) $\frac{f(g(a-1))}{4}$

$6(a-1)+2$

$6a-6+2$

$\frac{f(6a-4)}{4} = \frac{6a-4-2}{4} = \frac{6a-6}{4}$

$= \frac{3a-3}{2}$

6a) $f(x) = -2\sqrt{3x+9} - 1$

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

- reflect over x
- vert. st. 2
- horiz. comp. $\frac{1}{3}$
- left 3
- down 1