

1.3

#58

$$(\sqrt{h^2+1}+1)(\sqrt{h^2+1}-1)$$

$$= h^2+1-1$$

$$= h^2$$

$$\#80. a^3-b^6$$

$$=(a-b^2)(a^2+ab^2+b^4)$$

$$\#94. (x-1)^{\frac{3}{2}} - (x-1)^{\frac{3}{2}}$$

$$= (x-1)^{\frac{3}{2}} ((x-1)^2 - 1)$$

$$= (x-1)^{\frac{3}{2}} (x^2-2x+1-1)$$

$$= (x-1)^{\frac{3}{2}} (x^2-2x)$$

$$= x(x-1)^{\frac{3}{2}} (x-2)$$

$$\#130. \frac{1}{2}x^{-\frac{1}{2}}(3x+4)^{\frac{1}{2}} - \frac{3}{2}x^{\frac{1}{2}}(3x+4)^{-\frac{1}{2}}$$

$$= \frac{1}{2} \frac{1}{x^{\frac{1}{2}}} \frac{1}{(3x+4)^{\frac{1}{2}}} (3x+4 - 3x)$$

$$= \frac{2}{x^{\frac{1}{2}}(3x+4)^{\frac{1}{2}}}$$

$$1.4 \#36 \quad \frac{2x^2 - 3x - 2}{x^2 - 1}$$

$$\frac{2x^2 + 5x + 2}{x^2 + x - 2}$$

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

$$\frac{(2x + 1)(x + 2)}{(x + 2)(x - 1)}$$

$$= \frac{x - 2}{x + 1}$$

$$\#62 \quad \frac{1 + \frac{1}{c-1}}{1 - \frac{1}{c-1}}$$

$$= \frac{c-1+1}{c-1}$$

$$\frac{c-1-1}{c-1}$$

$$= \frac{c}{c-2}$$

1.4
#74

$$\frac{\frac{1}{\sqrt{x+h}} - \frac{1}{\sqrt{x}}}{h}$$

$$= \frac{1}{h} \left(\frac{1}{\sqrt{x+h}} - \frac{1}{\sqrt{x}} \right)$$

$$= \frac{1}{h} \left(\frac{\sqrt{x} - \sqrt{x+h}}{\sqrt{x}\sqrt{x+h}} \right)$$

$$= \frac{1}{h} \left(\frac{\sqrt{x} - \sqrt{x+h}}{\sqrt{x}\sqrt{x+h}} \right) \left(\frac{\sqrt{x} + \sqrt{x+h}}{\sqrt{x} + \sqrt{x+h}} \right)$$

$$= \frac{1}{h} \left(\frac{x - (x+h)}{(\sqrt{x}\sqrt{x+h})(\sqrt{x} + \sqrt{x+h})} \right)$$

$$= \frac{1}{h} \left(\frac{-h}{\sqrt{x}\sqrt{x+h}(\sqrt{x} + \sqrt{x+h})} \right)$$

$$= \frac{-1}{(\sqrt{x}\sqrt{x+h})(\sqrt{x} + \sqrt{x+h})}$$

#84.
$$\frac{(7-3x)^{\frac{1}{2}} + \frac{3}{2}x(7-3x)^{-\frac{1}{2}}}{7-3x}$$

$$= \left(\frac{1}{7-3x} \right) (7-3x)^{-\frac{1}{2}} \left(7-3x + \frac{3}{2}x \right)$$

$$= \frac{14-3x}{2(7-3x)^{\frac{3}{2}}}$$

1.8

$$\#36 \quad -\frac{1}{2} \leq \frac{4-3x}{5} \leq \frac{1}{4}$$

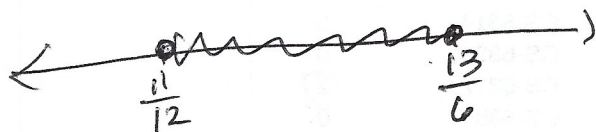
$$-10 \leq 16-12x \leq 5$$

$$-26 \leq -12x \leq -11$$

$$-\frac{13}{6} \leq -x \leq \frac{11}{12}$$

$$\frac{11}{12} \leq x \leq \frac{13}{6}$$

$$\text{Set } \left\{ x \mid \frac{11}{12} \leq x \leq \frac{13}{6} \right\}$$



$$\left[\frac{11}{12}, \frac{13}{6} \right]$$

$$\#70. \quad \frac{x}{2} \geq \frac{5}{x+1} + 4$$

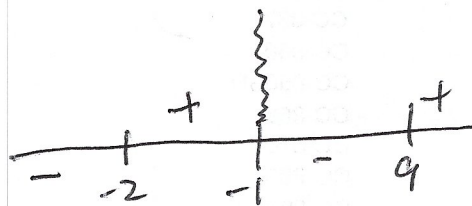
$$\frac{x}{2} - \frac{5}{x+1} - 4 \geq 0$$

$$\frac{x(x+1) - 10 - 4(2)(x+1)}{2(x+1)} \geq 0$$

$$\frac{x^2 + x - 10 - 8x - 8}{2(x+1)} \geq 0$$

$$\frac{x^2 - 7x - 18}{2(x+1)} \geq 0$$

$$\frac{(x-9)(x+2)}{2(x+1)} \geq 0$$



interval

$$[-2, -1) \cup [9, \infty)$$

1.8

#88

$$3 - |2x + 4| \leq 1$$

$$|2x + 4| \geq 2$$

$$2x + 4 \geq 2$$

or

$$2x + 4 \leq -2$$

$$x + 2 \geq 1$$

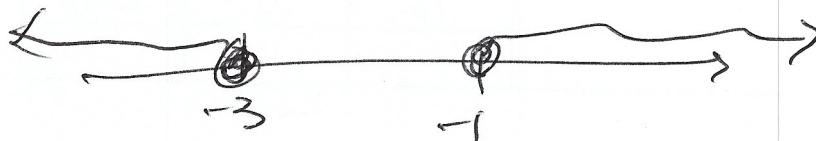
or

$$x + 2 \leq -1$$

$$x \geq -1$$

or

$$x \leq -3$$



$$(-\infty, -3] \cup [-1, \infty)$$