Starter #6

1. $x^2+9x+14>0$ 2. $\frac{x+2}{x^2-9}\geq 0$

3. The length of a rectangle is 3 more than triple it's width. If the area is at least 40cm^2, what are the possible values for the width?

4. An open box is made from 16x16 cardboard by cutting identical squares. The volume is not to exceed 250 in^3. Find the possible dim. to cut.

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(4) V: L·W·H 16×16

L: (16-2x)

W: (16-2x) $V\leq 250$

H: x

D: [0, 8] $(16-2x)(16-2x)x\leq 250$

1.46 4.09 250

$[0,1.46]\cup[4.09,8]$

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(3w+3)

w

L: 3w+3

W: w

A=L·W

$A\geq 40$

$W(3W+3)\geq 4$

$Y_1=3w^2+3w$

$Y_2=4$

3.19

$[3.19,\infty)$

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1. $x^2+9x+14\geq 0$

$x=-7$ $x=-2$

$(-\infty,-7]\cup[-2,\infty)$

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$\frac{x+2}{x^2-9}\geq 0$

$x+2=0$

$-2\ -2$

$x=-2$

bracket top

$x^2-9=0$

$(x-3)(x+3)$

$x=3$ $x=-3$ excluded

parenthesis bottom

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-3 -2 3

$(-3,-2]\cup(3,\infty)$

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8.5 ?'s

(9) $\left(\frac{x}{x+1}\right)^2 - 2\left(\frac{x}{x+1}\right) - 8 = 0$ $u = \frac{x}{x+1}$

$u^2 - 2u - 8 = 0$

$a=1 \quad b=-2 \quad c=-8$ (−4, 2)

$(u-4)(u+2)$

$u=4 \quad u=-2$

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(13) $3x^{\frac{4}{3}} + 5x^{\frac{2}{3}} - 2 = 0$

$a=3 \quad b=5 \quad c=-2$ (6, −1)

$(3x^{\frac{2}{3}} + 6)(3x^{\frac{2}{3}} - 1)$

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

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

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$3x^{\frac{2}{3}} - 1 = 0$

$x^{\frac{2}{3}} = \frac{1}{3}$

$\left(\sqrt[2]{\frac{1}{3}}\right)^3$ $\quad \left(\frac{1}{3}\right)^{\frac{3}{2}}$ $\quad \frac{1}{3} \wedge (3 \div 2)$

$\sqrt[2]{\frac{1}{3}} \quad \sqrt[3]{\frac{1}{3}} \quad \sqrt[2]{\frac{1}{3}}$

$\pm \frac{1}{3} \cdot \frac{1}{\sqrt{3}}$ $\quad \pm \frac{1}{3\sqrt{3}}$ $\quad \frac{\sqrt{3}}{9}$ $\quad$ or $\pm .19$

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x^2 Quadratic

x^3 cubic

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$x^{\frac{2}{3}\cdot\frac{3}{2}} = -2^{\frac{3}{2}}$

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$x = 4(x+1)$ $\quad \frac{x}{x+1}$

$x = 4x + 4$

$-4x \quad -4x$

$-3x = 4$

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

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

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

$x = -2x - 2$

$+2x \quad +2x$

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

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

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