1.4.69

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

$$= \frac{(1/x^2 - 1/y^2)\cdot x^2y^2}{(1/x + 1/y)\cdot x^2y^2} = \frac{y^2 - x^2}{xy^2 + x^2y}$$

$$= \frac{(x-y)(x+y)}{xy(y+x)} = \frac{x-y}{xy}$$

$$\frac{\frac{y^2-x^2}{x^2y^2}}{\frac{y+x}{xy}} = \frac{y^2-x^2}{x^2y^2} \cdot \frac{xy}{x+y}$$

$$= \frac{(y-x)(y+x)}{xy(x+y)}$$

1.5.61

$$2x^2 + 8x + 1 = 0$$

$$2\left(x^2 + 4x + \tfrac{1}{2}\right) = 0$$

$$2\left(x^2 + 4x \underbrace{+4 - 4}_{+0} + \tfrac{1}{2}\right) = 0$$

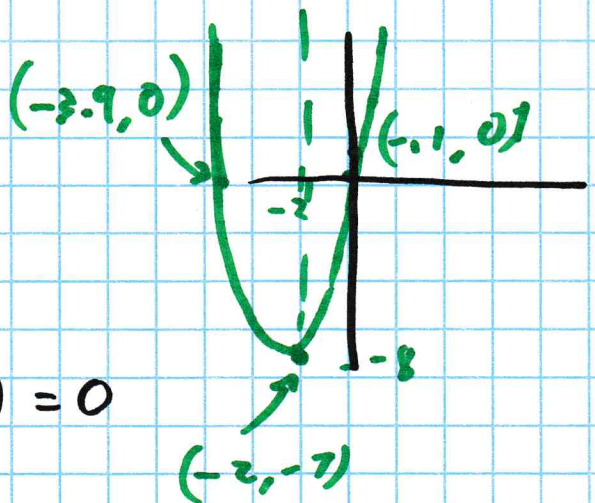
$$2\left((x+2)^2 - \tfrac{7}{2}\right) = 0$$

$$2(x+2)^2 - 7 = 0$$

V: $(-2, -7)$

$$x + 2 = \pm\sqrt{\tfrac{7}{2}}$$

$$x = \underbrace{-2 + \sqrt{\tfrac{7}{2}}}_{-.1}, \quad \underbrace{-2 - \sqrt{\tfrac{7}{2}}}_{-3.9}$$



$$4\underbrace{(x+1)}_{a}^{1/2} - 5(x+1)^{3/2} + (x+1)^{5/2} = 0$$

Let $a = x+1$, $a - 1 = x$

$w = (x+1)^{1/2}$

$$4a^{1/2} - 5a^{3/2} + a^{5/2} = 0$$

$$a^{1/2}(4 - 5a^1 + a^2) = 0;$$

$$w(4 - 5w^2 + w^4) = 0$$

$$a^{1/2}(a-4)(a-1) = 0$$

$\sqrt{a} = 0$, $a = 0$

$a - 4 = 0$, $a = 4$

$a - 1 = 0$, $a = 1$

$x = -1, 3, 0$