

8e

$$x^2 + y^2 = 6$$

$$y = \sqrt{x^2 + 3}$$

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

$$x^2 + x^2 + 3 = 6$$

$$2x^2 = 3$$

$$x^2 = 3/2$$

$$x = \pm \sqrt{3/2}$$

or

$$x \approx \pm 1.22$$

$$(\sqrt{3/2})^2 + y^2 = 6$$

$$3/2 + y^2 = 6$$

$$y^2 = 4\frac{1}{2}$$

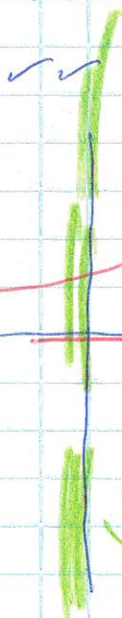
$$y = \pm 3/\sqrt{2}$$

or

$$y \approx \pm 2.12$$

$$y^2 \approx 2.12$$

$$(1.22, 2.12) \approx (-1.22, 2.12)$$



2 points

18

$$y = 2^x$$

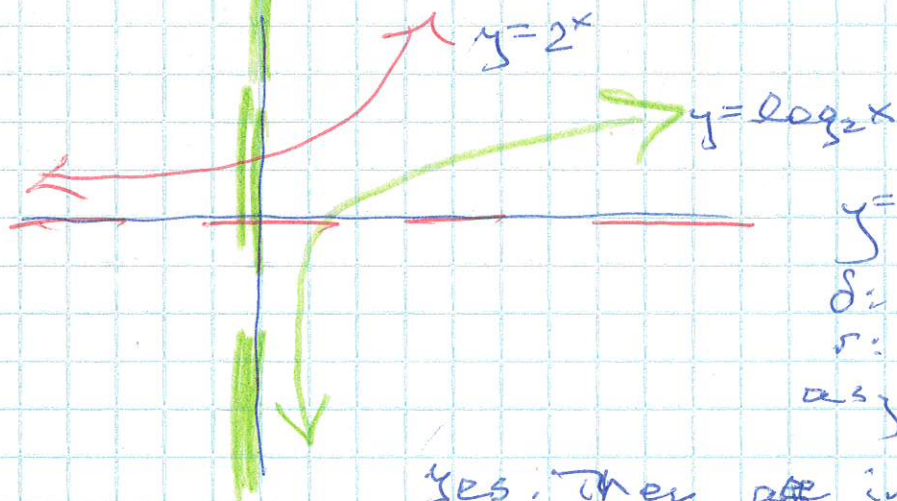
$$y = \log_2 x$$

$$y = 2^x$$

$$D: \mathbb{R}$$

$$R: y > 0$$

$$asym: y = 0$$



$$y = \log_2 x$$

$$D: x > 0$$

$$R: \mathbb{R}$$

$$asym: x = 0$$

yes, they are inverses

31a

$$\log(x) + \log(x+2) = \log(x+12)$$

$$\log(x(x+2)) = \log(x+12)$$

$$x(x+2) = x+12$$

$$x^2 + 2x = x + 12$$

$$x^2 + x - 12 = 0$$

$$(x+4)(x-3) = 0$$

$$x = -4 \quad x = 3$$

extraneous