

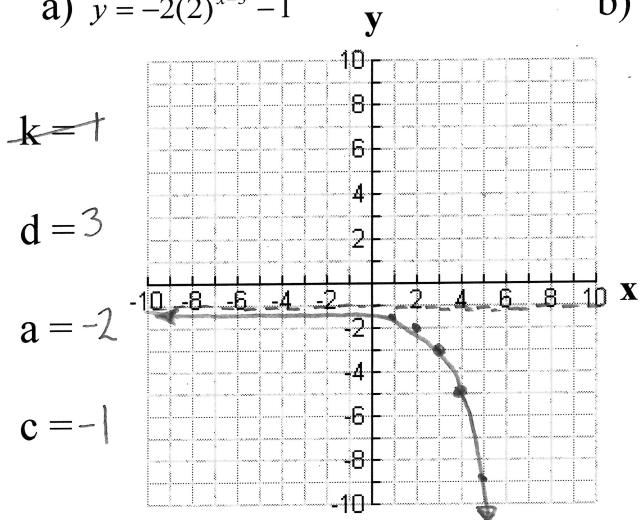
* See Next Page for y-int work.

Solⁿ

Homework: Complete Below + pg 251 #1-3, 9, (12)

Graph the functions below. Determine the y-int, equation of the asymptote, and state the domain and range.

a) $y = -2(2)^{x-3} - 1$



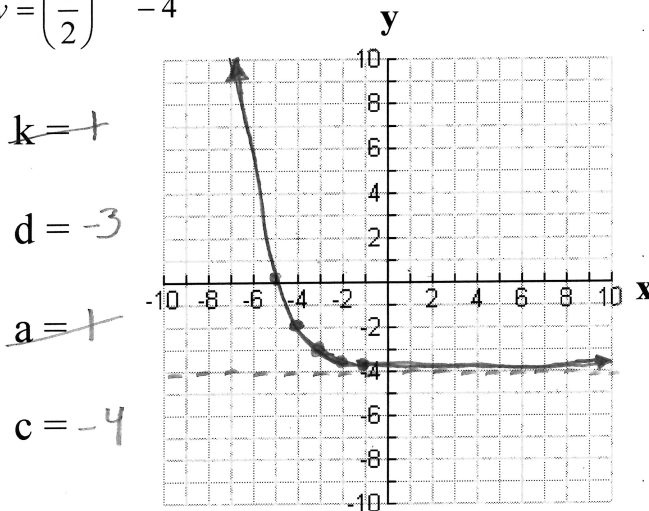
y-int: -1.25

Eqn of Asymptote: $y = -1$

Domain: $\{x \in \mathbb{R}\}$

Range: $\{y \in \mathbb{R} \mid y < -1\}$

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



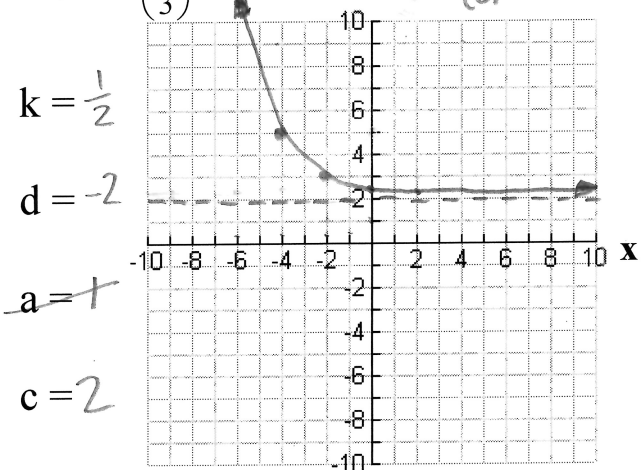
y-int: -3.875

Eqn of Asymptote: $y = -4$

Domain: $\{x \in \mathbb{R}\}$

Range: $\{y \in \mathbb{R} \mid y > -4\}$

c) $y = \left(\frac{1}{3}\right)^{\frac{1}{2}x+1} + 2$ $y = \left(\frac{1}{3}\right)^{\frac{1}{2}(x+2)} + 2$ $d) y = -3^{x-2} + 4$

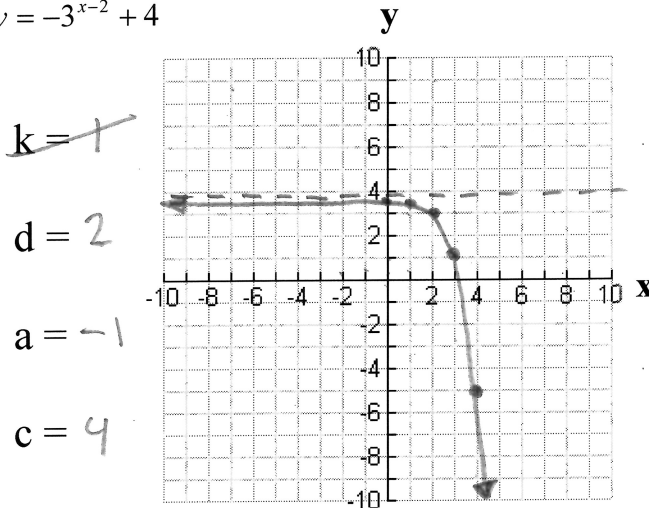


y-int: ~ 2.3

Eqn of Asymptote: $y = 2$

Domain: $\{x \in \mathbb{R}\}$

Range: $\{y \in \mathbb{R} \mid y > 2\}$



y-int: ~ 3.9

Eqn of Asymptote: $y = 4$

Domain: $\{x \in \mathbb{R}\}$

Range: $\{y \in \mathbb{R} \mid y < 4\}$

y-Intercepts

a) y-int (x=0)

$$y = -2(2)^{0-3} - 1$$

$$y = -2(2)^{-3} - 1$$

$$y = -2\left(\frac{1}{2^3}\right) - 1$$

$$y = -\frac{2}{1}\left(\frac{1}{8}\right) - 1$$

$$y = -\frac{1}{4} - 1$$

$$y = -\frac{1}{4} - \frac{4}{4}$$

$$y\text{-int} = -\frac{5}{4} (-1.25)$$

c) y-int (x=0)

$$y = \left(\frac{1}{3}\right)^{\frac{1}{2}(0)+1} + 2$$

$$y = \left(\frac{1}{3}\right)^1 + 2$$

$$y = \frac{1}{3} + \frac{6}{3}$$

$$y\text{-int} = \frac{7}{3} (\sim 2.3)$$

b) y-int (x=0)

$$y = \left(\frac{1}{2}\right)^{0+3} - 4$$

$$y = \left(\frac{1}{2}\right)^3 - 4$$

$$y = \frac{1}{2^3} - 4$$

$$y = \frac{1}{8} - \frac{32}{8}$$

$$y\text{-int} = -\frac{31}{8} (-3.875)$$

d) y-int (x=0)

$$y = -3^{0-2} + 4$$

$$y = -1(3)^{-2} + 4$$

$$y = -1\left(\frac{1}{3^2}\right) + 4$$

$$y = -1\left(\frac{1}{9}\right) + 4$$

$$y = -\frac{1}{9} + \frac{36}{9}$$

$$y\text{-int} = \frac{35}{9} (\sim 3.9)$$