p. 26 # 4, 10, 11

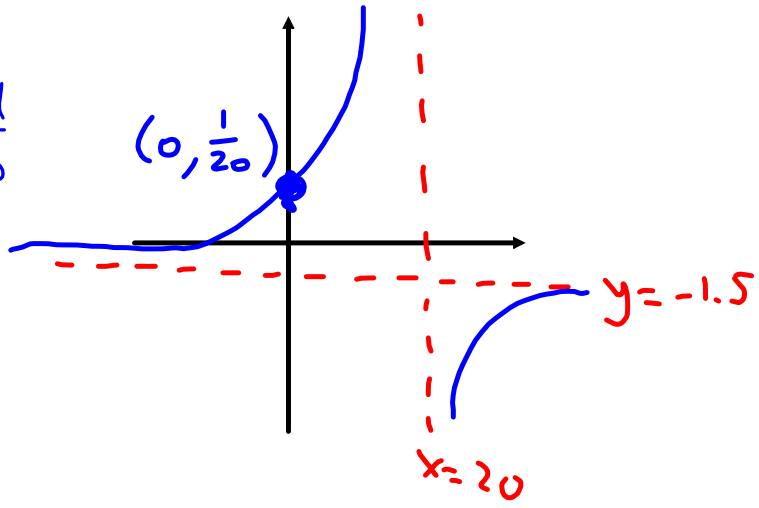
p. 81 # 11, 12

p. 89 # 11

p. 72

17. $C(t) = 1.5t + 1$ $\quad T(t) = -1t + 20$

a) $\frac{C(t)}{T(t)} = \frac{1.5t+1}{-t+20}$




H.A.: $y = -1.5$

V.A. $x = 20$

p. 73

#22. $f(x) = \frac{a}{x-h}$ $(0,25)$ $(20,13)$

$f(x)$ = dissolution time (min)

$x$ = temp (°C)

a) $25 = \frac{a}{0-h}$ $13 = \frac{a}{20-h}$

$-25h = a$ $13(20-h) = a$

$260 - 13h = a$

$-25h = 260 - 13h$

$-12h = 260$

$h = -\frac{260}{12}$

$h = -\frac{65}{3}$ $a = -25\left(\frac{65}{3}\right)$

$= \frac{1625}{3}$

$f(x) = \frac{\frac{1625}{3}}{x + \frac{65}{3}} = \frac{1625}{3\left(x + \frac{65}{3}\right)} = \frac{1625}{3x+65}$

b) 1) $f(x) = 5$

$$5 = \frac{1625}{3x + 65}$$

$$5(3x + 65) = 1625$$

$$15x + 325 = 1625$$

$$15x = 1300$$

$$x = 86.7$$

b) 2) $f(x) < 10$

$10 = \frac{1625}{3x+65}$

$x = \frac{-65}{3} \simeq -21.7$

$10(3x+65) = 1625$

$30x + 650 = 1625$

$30x = 975$

$x = \frac{975}{30} = 32.5$

$]-\infty, -\frac{65}{3}[ \quad ]-\frac{65}{3}, 32.5[ \quad ]32.5, \infty[$

$f(-10^\circ)$

$= \frac{1625}{-300+65}$

$= -6.9$ ✓

$f(0) = \frac{1625}{65}$

$= 25$ ✗

$f(100) = \frac{1625}{300+65}$

$= 4.4$ ✓

Temp must be greater than $32.5^\circ C$