Part I Chapter 4

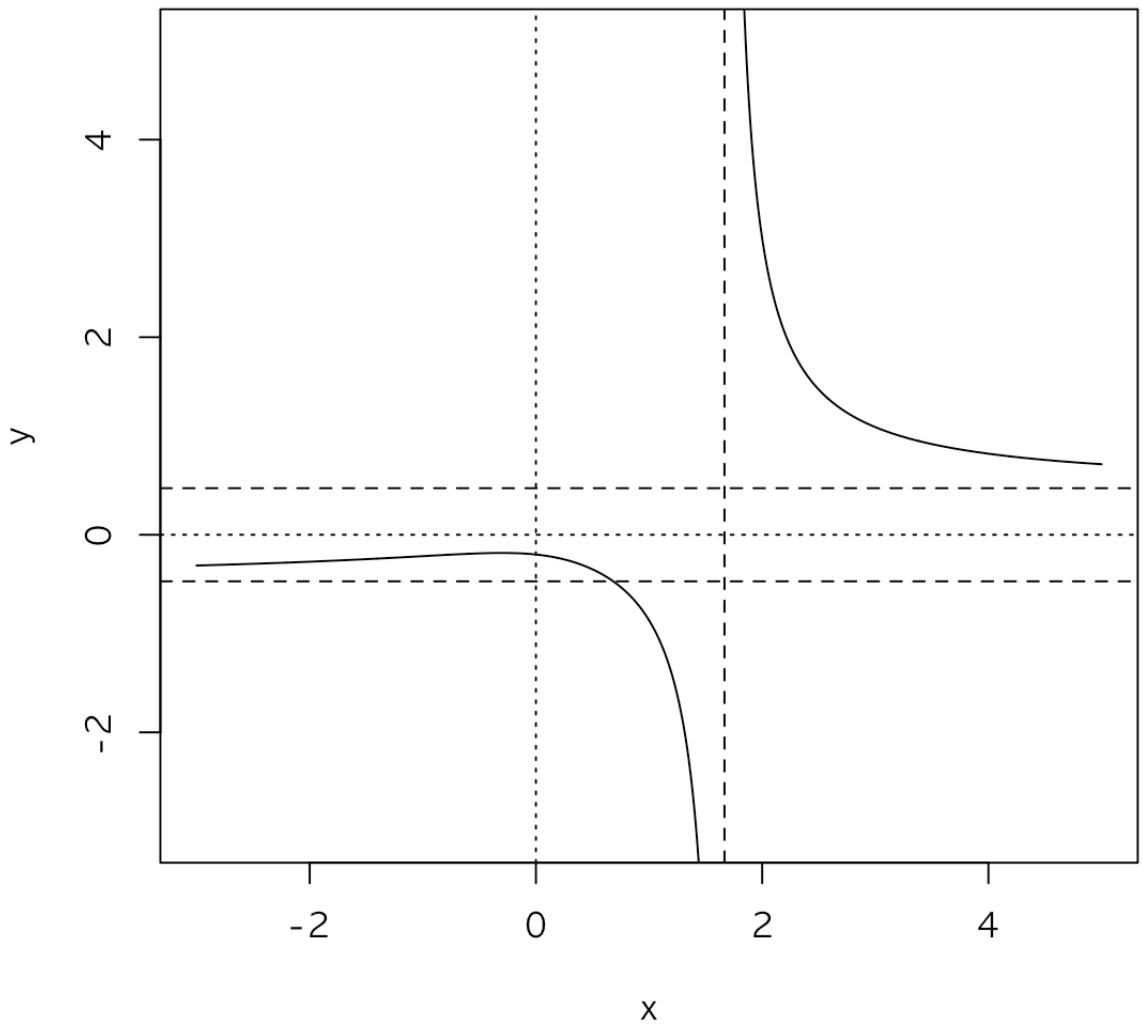
예제 3-4.

왜 x-축에 5/3를 꼭 포함시키는지 생각해 볼 것.

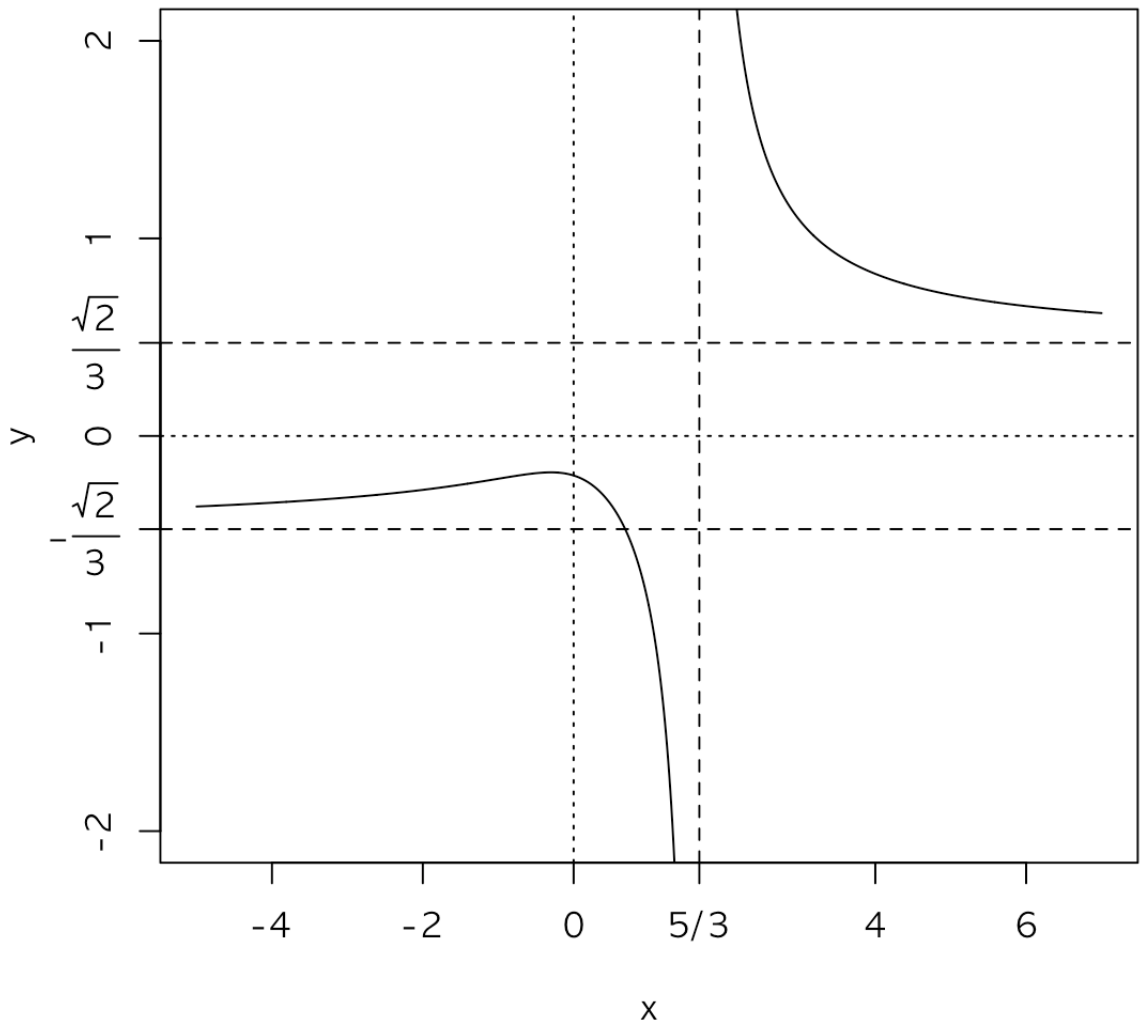
```
x <- sort(c(seq(-3, 5, length = 1000), 5/3))
f.3.4 <- function(x){
  (sqrt(2*x^2 + 1))/(3*x - 5)
  }
f.3.4(-3/10)
```

```
## [1] -0.1841149
```

```
y <- f.3.4(x)
plot(x, y, type = "l", ylim = c(-3, 5))
abline(h = 0, v = 0, lty = 3)
abline(h = c(-sqrt(2)/3, sqrt(2)/3), v =  5/3, lty = 2)
```

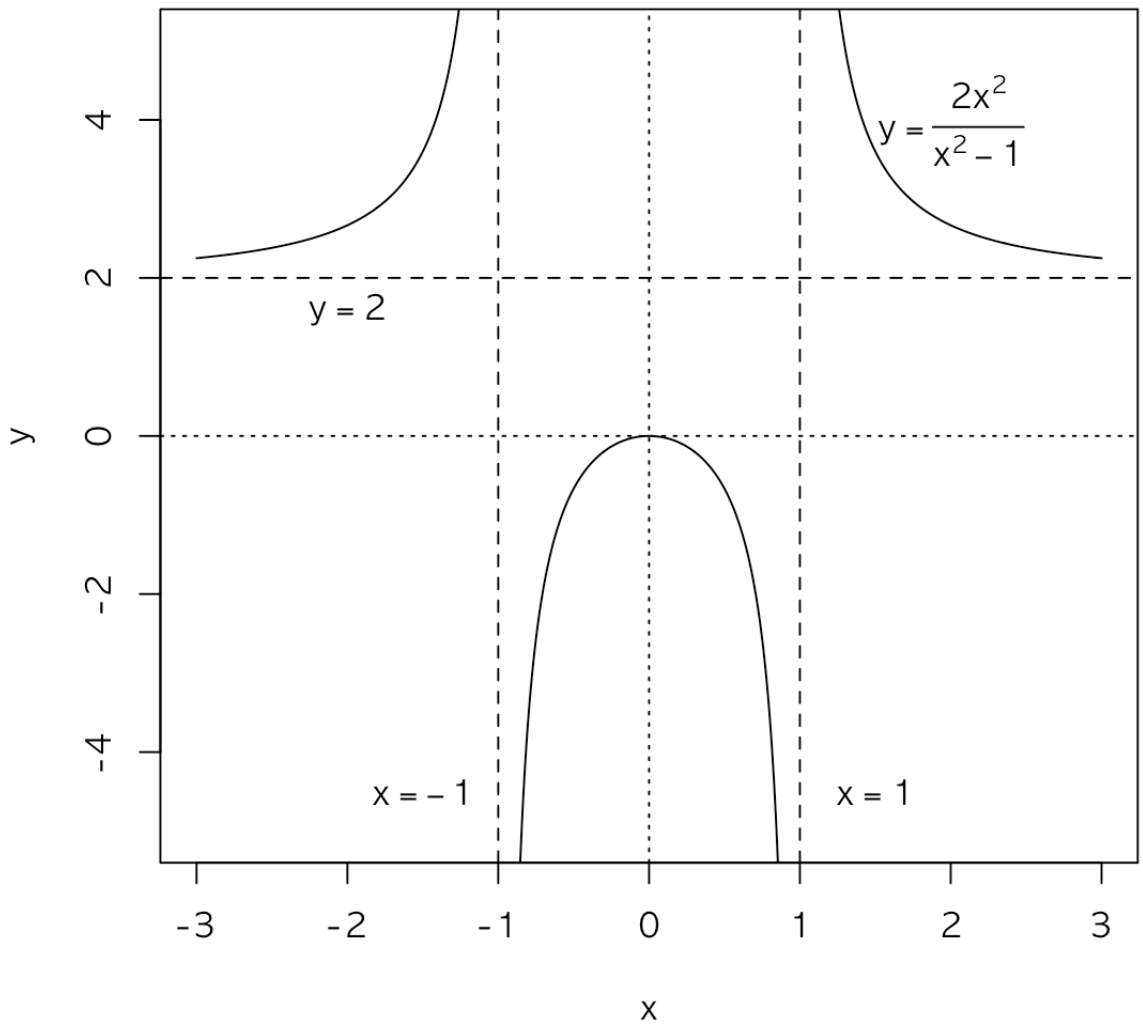


```
x <- sort(c(seq(-5, 7, length = 1000), 5/3))
f.3.4 <- function(x){
  (sqrt(2*x^2 + 1))/(3*x - 5)
  }
y <- f.3.4(x)
plot(x, y, type = "l", ylim = c(-2, 2), xaxt = "n")
abline(h = 0, v = 0, lty = 3)
abline(h = c(-sqrt(2)/3, sqrt(2)/3), v =  5/3, lty = 2)
axis(side = 1, at = c(-4, -2, 0, 5/3, 4, 6) , labels = c(-4, -2, 0, "5/3", 4,
6))
axis(side = 2, at = c(-sqrt(2)/3, sqrt(2)/3), labels = c(expression(-frac(sqrt
(2),3)), expression(frac(sqrt(2), 3))), las = 1)
```



예제 4-1.

```
x <- sort(c(seq(-3, 3, length = 1000), c(-1, 1)))
f.4.1 <- function(x){
  (2*x^2)/(x^2 - 1)
  }
y <- f.4.1(x)
plot(x, y, type = "l", ylim = c( -5, 5))
abline(h = 0, v = 0, lty = 3)
abline(h = 2, v =  c(-1, 1), lty = 2)
text(x = 2, y = 4, labels = expression(y==frac(2*x^2, x^2-1)))
text(x = -2, y = 1.6, labels = expression(y==2))
text(x = c(-1.5, 1.5), y = -4.5, labels = c(expression(x==-1), expression(x==
1)))
```



예제 4-2.

```
x <- seq(-1, 4, length = 1000)
f.4.2 <- function(x){
  (x^2)/sqrt(x + 1)
  }
y <- f.4.2(x)
plot(x, y, type = "l", xlim = c(-2, 4), ylim = c(-1, 5))
abline(h = 0, v = 0, lty = 3)
abline(v = -1, lty = 2)
text(x = 2, y = 1, labels = expression(y==frac(x^2, sqrt(x+1))))
text(x = -1.5, y = -0.5, labels = expression(x==-1))
```