Exam 2: Take-Home (25 points)

Matt Kline

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```r
x <- y <- c(0, 0.25, 0.5, 0.75, 1)
plot(x = x, y = x^2, type = "b", pch = 15, xaxt = "n",
     yaxt = "n", bty = "n", cex = 1,
     xlab = "X axis label substring",
     ylab = "y-axis label", main = "Title")
axis(1, at = c(0, 0.5, 1), cex = 1)
axis(2, at = c(0, 0.5, 1), las = 1, cex = 1)
par(new = T)
plot(x = x, y = 1 - x^2, type = "b", pch = '#',
     xaxt = "n", yaxt = "n", bty ="n", ann = F)
text(0.3, 0.8, "text at (0.3, 0.8)", cex = 1)
text(0.3, 0.5, "Point of intersection", cex = 1)
arrows(0.5, 0.5, 1/sqrt(2) - 0.015, 0.5, length = .2)
legend(0.5, 1, legend = c("y = x^2", "y = 1 - x^2"),
       pch = c(15, NA))
text(0.53, 0.91, "#")
mtext("mtext outside plot area", side = 3)
mtext("Line 1", side = 1, at = 0.1, 0.1, las = 1)
mtext("Line 2", side = 1, at = 0.1, 1.1, las = 1)
mtext("Line 3", side = 1, at = 0.1, 2.1, las = 1)
mtext("Line 4", side = 1, at = 0.1, 3.1, las = 1)
mtext("Line 1", side = 2, at = 0.1, 0.1, las = 0)
mtext("Line 2", side = 2, at = 0.1, 1.1, las = 0)
mtext("Line 3", side = 2, at = 0.1, 2.1, las = 0)
mtext("Line 4", side = 2, at = 0.1, 3.1, las = 0)
mtext("Line 1", side = 3, at = 0.1, 0.1, las = 1)
mtext("Line 2", side = 3, at = 0.1, 1.1, las = 1)
mtext("Line 3", side = 3, at = 0.1, 2.1, las = 1)
mtext("Line 4", side = 3, at = 0.1, 3.1, las = 1)
mtext("Line 1", side = 4, at = 0.1, 0.1, las = 0)
mtext("Line 2", side = 4, at = 0.1, 1.1, las = 0)
```

Line 4
Line 3
Line 2
Line 1

Title

mtext outside plot area

1.0 #

#

■ y = x^2
y = 1 − x^2

text at (0.3, 0.8)

#

y−axis label

0.5

Point of intersection →

■

#

Line 4
Line 3
Line 2
Line 1

Line 1
Line 2

0.0 ■

#

0.0

0.5

1.0

Line 1
Line 2
Line 3
Line 4

X axis label substring

2