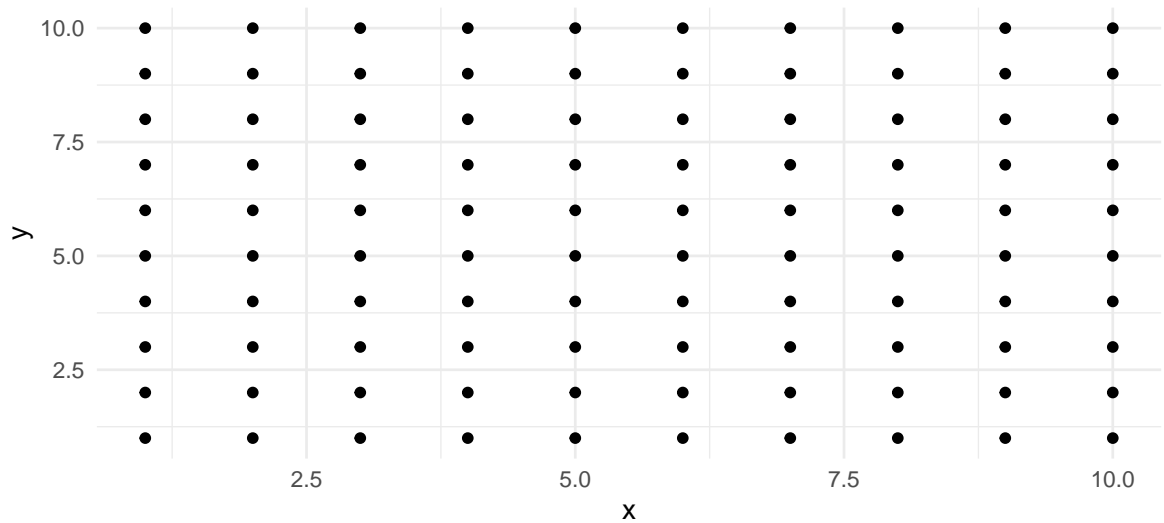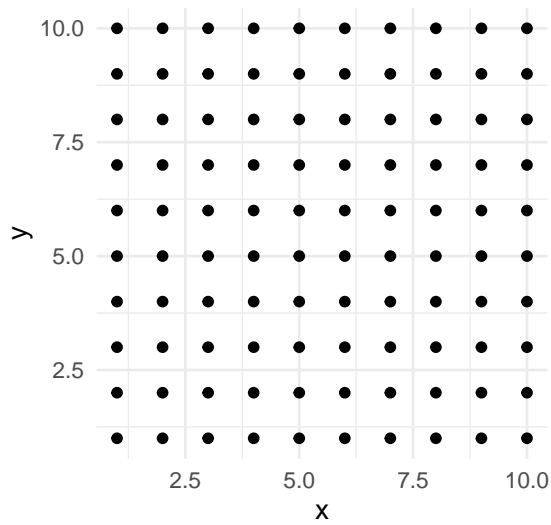John Hendley & Randy Nguyen

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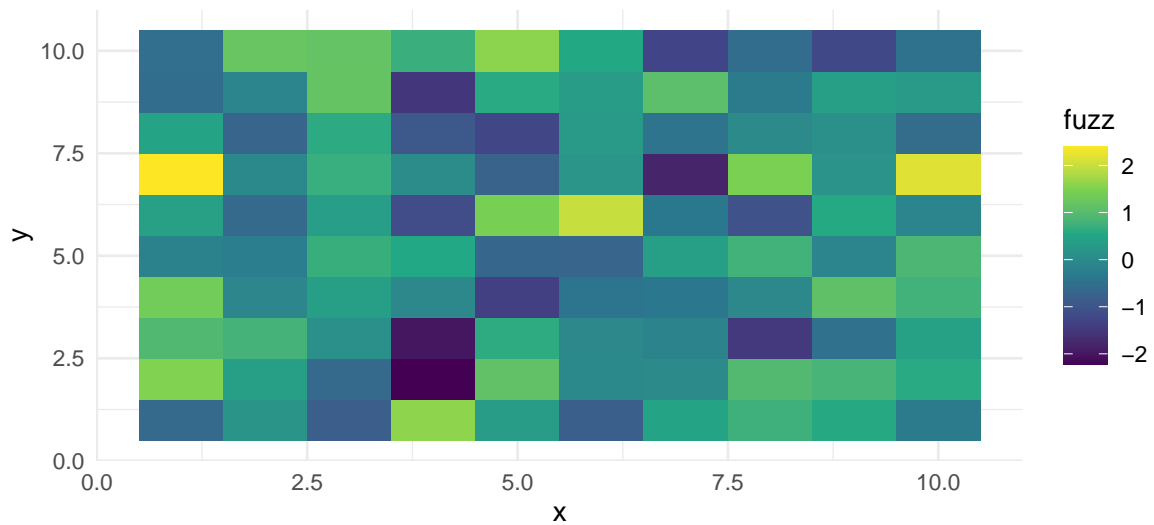Homework 3

Question 1

a.
```r
library("tidyverse")

df <- expand.grid("x" = 1:10, "y" = 1:10)
ggplot(df, aes(x, y)) +
  geom_point() +
  theme_minimal()
```


b.
```r
ggplot(df, aes(x, y)) +
  geom_point() +
  theme_minimal() +
  coord_equal()
```
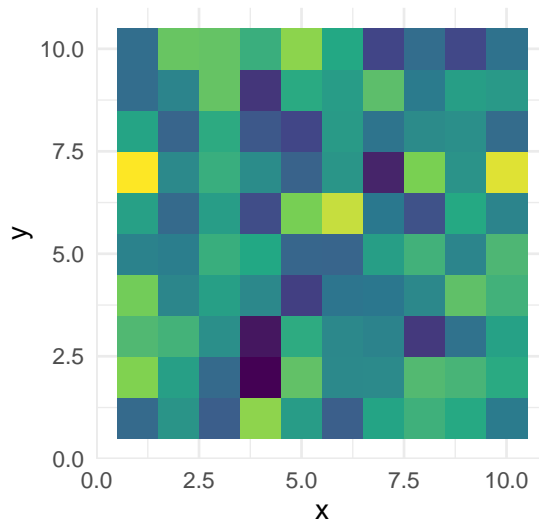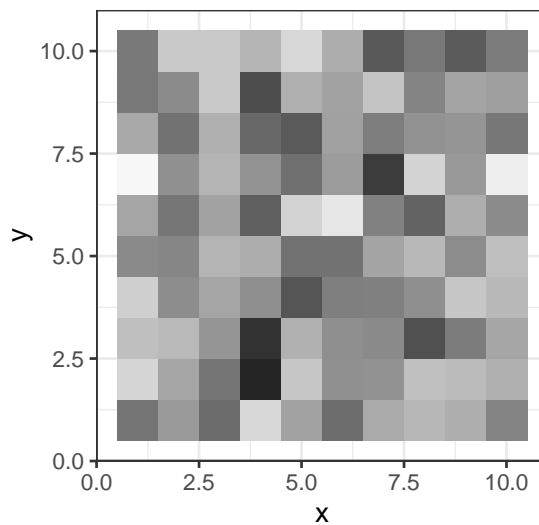
c.
```r
set.seed(1)
fuzz <- rnorm(nrow(df))
ggplot(df, aes(x, y, fill = fuzz)) +
  theme_minimal() +
  geom_tile()
```


d.
```r
set.seed(1)
fuzz <- rnorm(nrow(df))
ggplot(df, aes(x, y, fill = fuzz)) +
  theme_minimal() +
  geom_tile() +
  theme(legend.position = "none") +
  coord_equal()
```

e.
```r
set.seed(1)
fuzz <- rnorm(nrow(df))
ggplot(df, aes(x, y, fill = fuzz)) +
  theme_bw() +
  geom_tile() +
  coord_equal() +
  theme(legend.position = "none") +
  scale_fill_distiller(palette = "Greys")
```
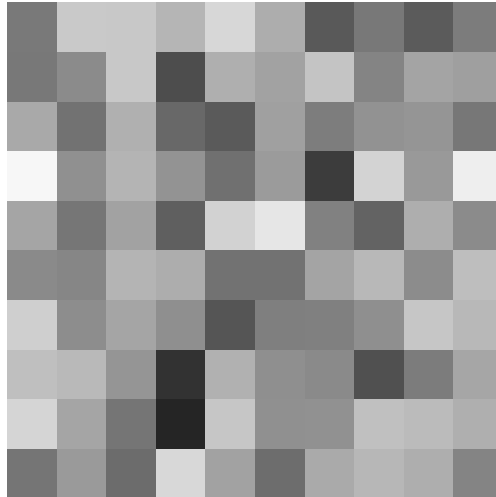

f.
```r
set.seed(1)
fuzz <- rnorm(nrow(df))
ggplot(df, aes(x, y, fill = fuzz)) +
  geom_tile() +
  coord_equal() +
  scale_fill_distiller(palette = "Greys") +
  ylab(NULL) +
```

```
    xlab(NULL) +
    theme_void() +
    theme(legend.position = "none")
```
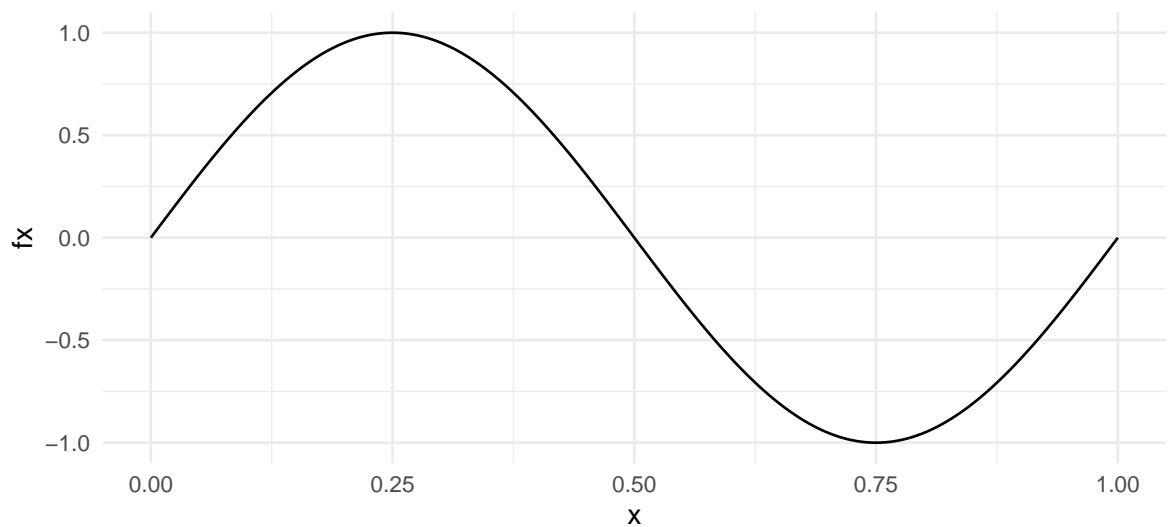


```
g. x <- seq(0, 1, 1e-4)
   fx <- sin(2*pi*x)
   sine <- data.frame("x" = x, "y" = fx)
   ggplot(sine, aes(x, fx)) +
     theme_minimal() +
     geom_line()
```
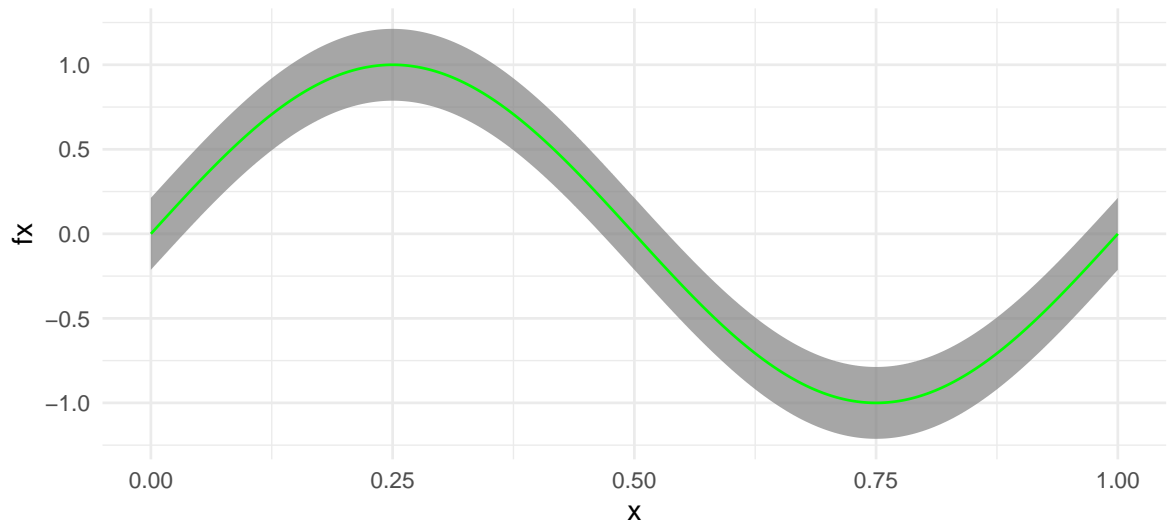


```
h. x <- seq(0, 1, 1e-4)
   fx <- sin(2*pi*x)
   sine <- data.frame("x" = x, "y" = fx)
   ggplot(sine, aes(x, fx)) +
```
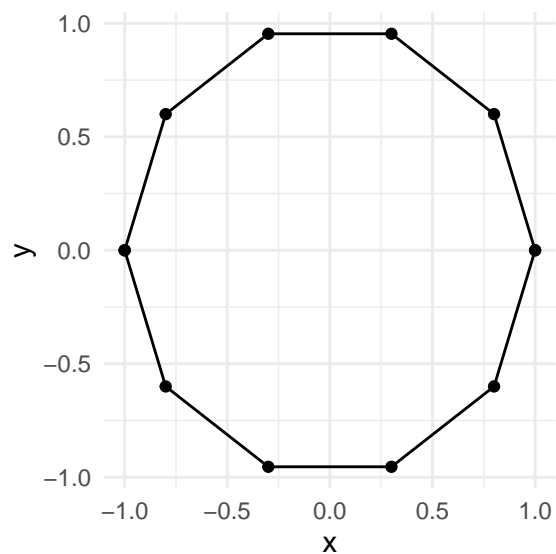
```
    theme_minimal() +
    geom_ribbon(aes(ymin = fx - 0.2125, ymax = fx + 0.2125), fill = "grey50", alpha = 0.7) +
    geom_line(color = "green")
```
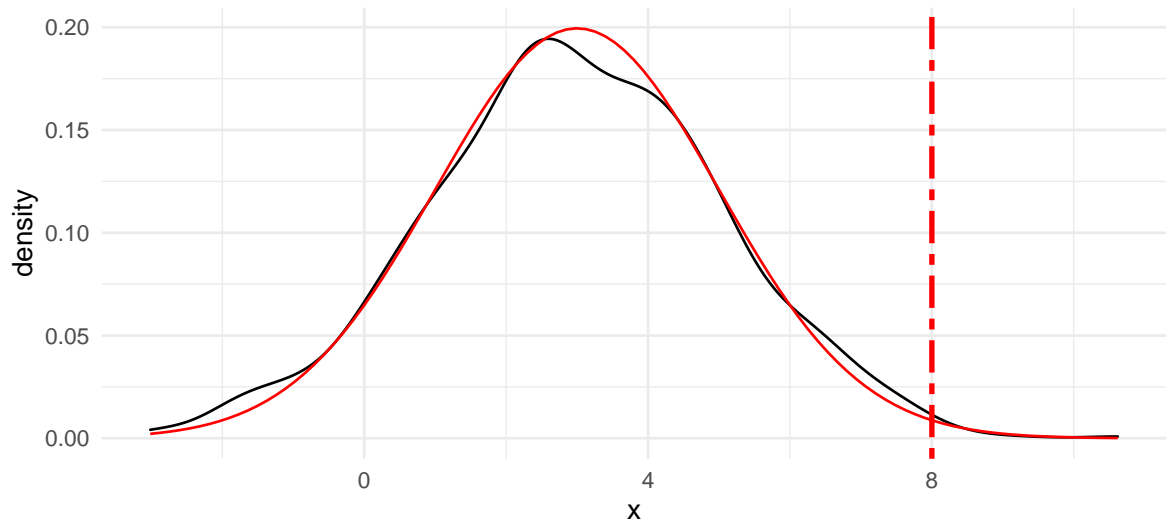

i.
```
x1 <- c(-1, -0.8, -0.3, 0.3, 0.8, 1)
decagon_top <- sqrt(1 - (x1)^2)
x2 <- c(1, 0.8, 0.3, -0.3, -0.8, -1)
decagon_bot <- -1*sqrt(1 - (x2)^2)
decagon <- data.frame(x = c(x1, x2), y = c(decagon_bot, decagon_top))
ggplot(decagon, aes(x, y)) +
  geom_point() +
  geom_path() +
  theme_minimal()
```

```
j. set.seed(1)
  df <- data.frame(x = rnorm(1e3, mean = 3, sd = 2))
  ggplot(df, aes(x)) +
    geom_density() +
    stat_function(fun = dnorm, args = list(mean = 3, sd = 2), color = "red") +
    geom_vline(xintercept = 8, color = "red", linetype = "twodash", size = 1) +
    theme_minimal()
```


Question 2

a.

b.

c.

d.

e.

f.