

2025 Q1 Review Quiz A

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Section I

1. Write code to draw a solid blue circle of radius 2 with center at (5,-7).
2. Doc Mo's complete event handler looks like this:

```
eventh :: Event -> Int -> Int
eventh (KeyRelease x) n = n + 1
```

When he runs the code, even before touching a key or mouse he gets an error:

```
Non-exhaustive patterns in function eventh
```

Explain the issue.

3. Reading Doc Mo's code you see

```
drawWithTime (Model _ _ t) =
    translated 9 9 $ lettering $ T.pack $ show t
```

Why is `T.pack` needed? (Bonus: what is the signature of `T.pack`?)

4. You copy and paste the starter code and you see:

```
-- Doc Mo Code
{-# LANGUAGE OverloadedStrings #-}
import CodeWorld
import qualified Data.Text as T
main = do print "Start"
```

This is likely to lead to an error later. Explain briefly.

5. Make a list of pictures variable `qcheck` so that `drawingOf $ pictures qcheck` is a 10x10 checkerboard grid. Each square should be 1x1. It doesn't matter where you place the squares. Ignore any issues requiring `fromIntegral` if they occur.

```
{{% figure src="2025-10-15-checkerboard.png" width="150" %}}}
```

6. Assume that the `qcheck` variable correctly makes a checkerboard, regardless of what you wrote for the previous question. Use that to construct `qfancy`, a checkerboard where the black squares are colored with `assortedColors`.

```
{{% figure src="2025-10-15-fancy.png" width="150" %}}}
```

7. Event Handler

Use the model below to write the event handler for an animation.

```
data Model = Model {bpt :: Point, cpt :: Point, tx :: Double}
    deriving (Show, Eq)
```

```
main = activityOf initialModel rendercirc eventh
```

The rendering function `rendercirc :: Model -> Picture` draws a circle of radius 2 with center `bpt`.

Write an event handling function that will cause the circle to move to be centered on the last location of the mouse click approximately every 3.0 seconds.