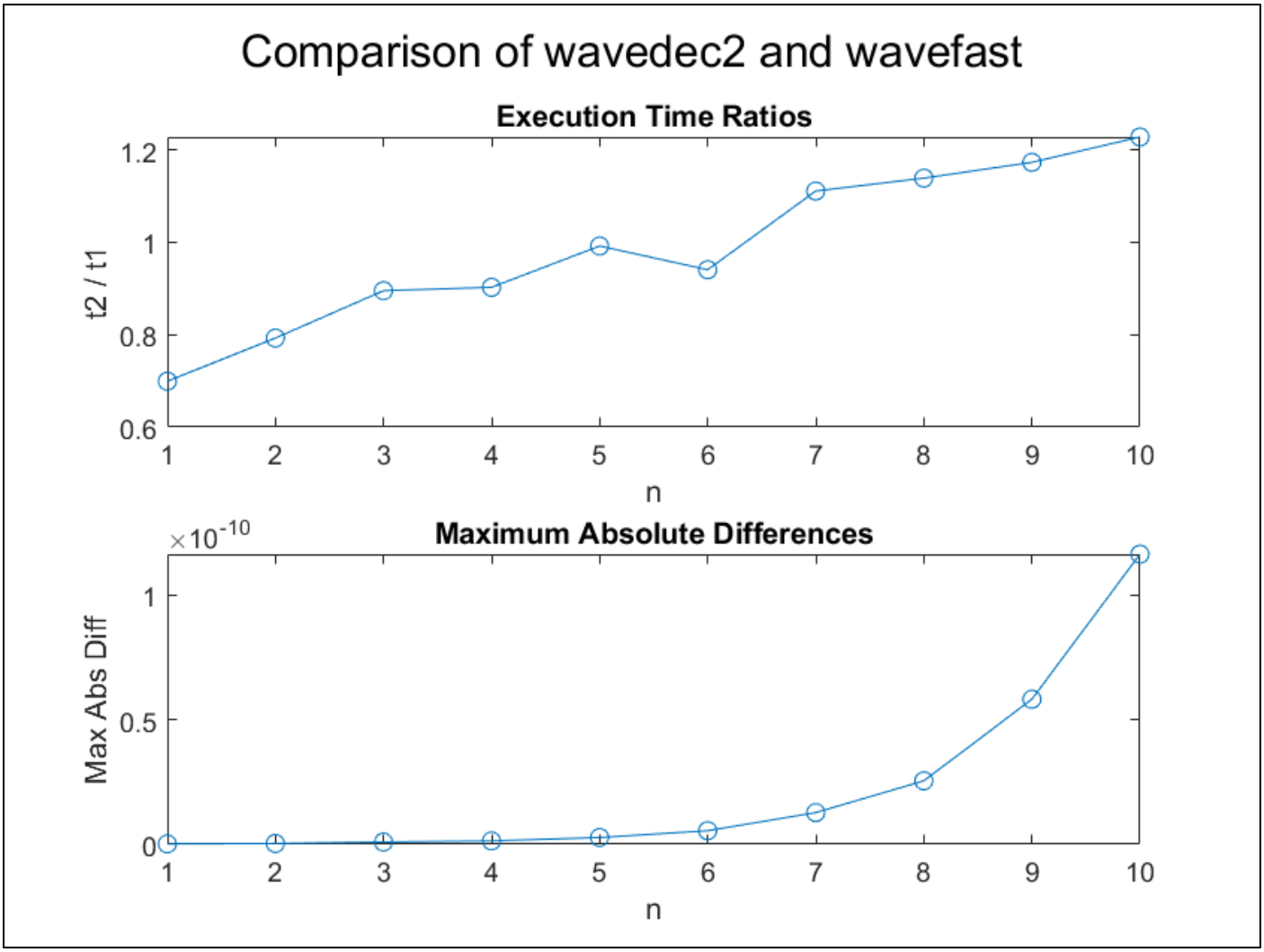
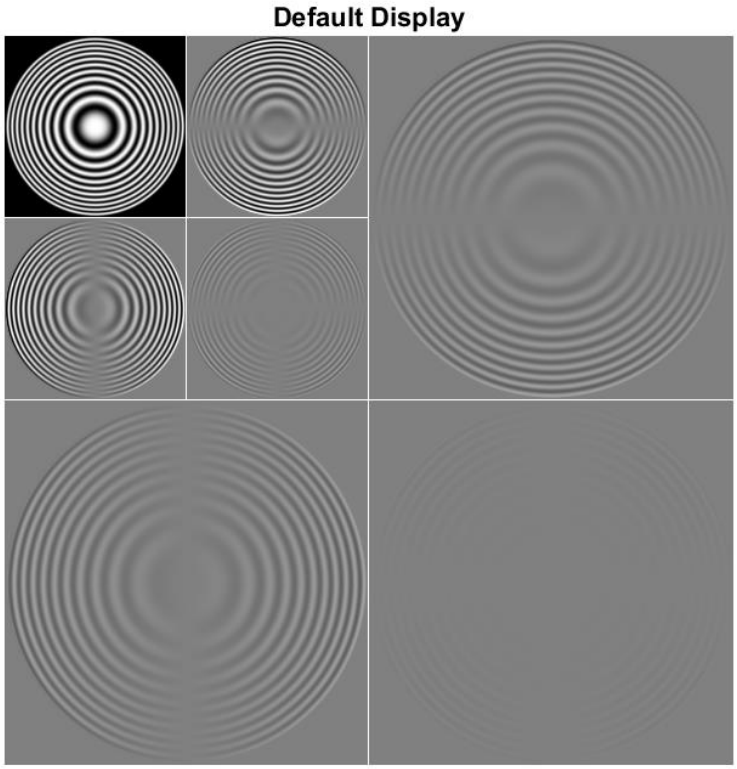
CA4 report b10505057

Problem 1

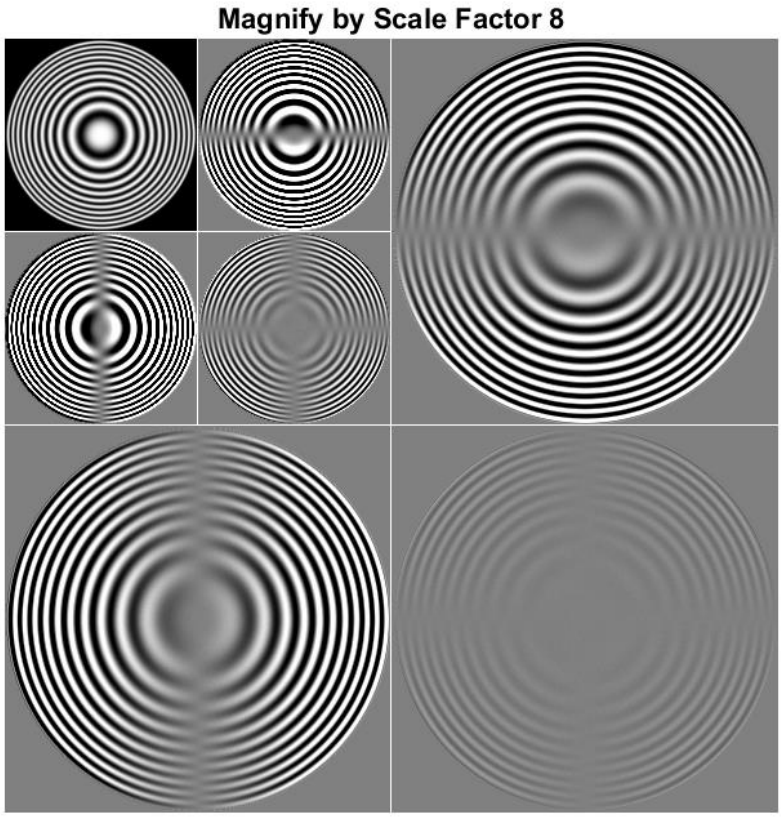


Problem 2

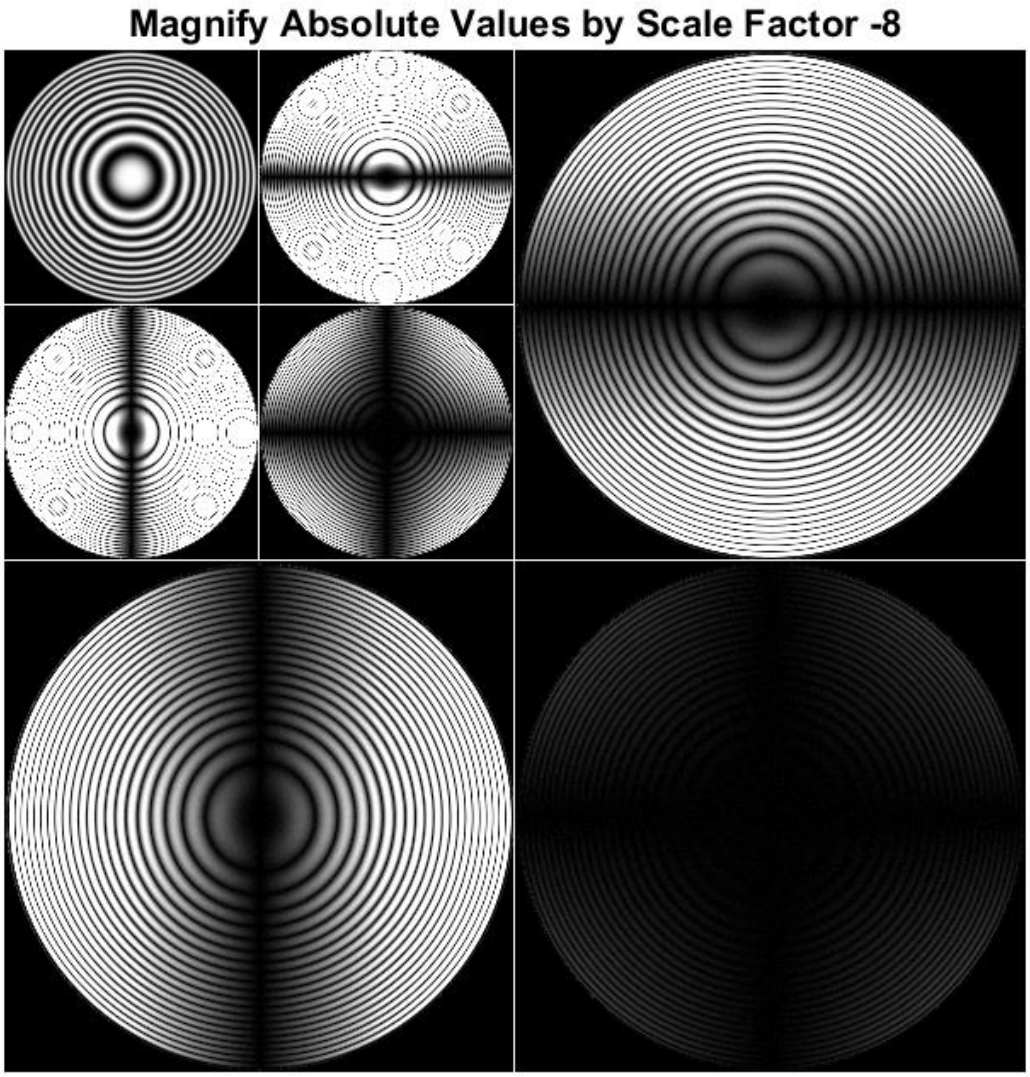
(a) Default



(b) Magnify default by scale of 8



(c) Magnify absolute values by abs(scale) with scale $= -8$



Discussion

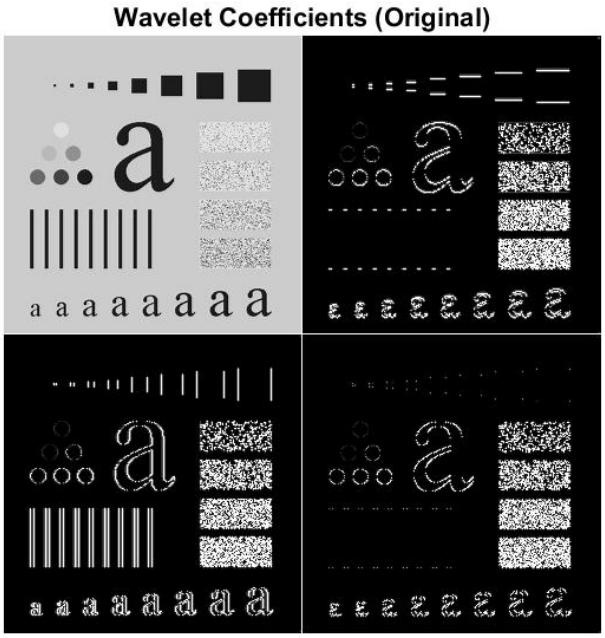
(a) Default Setting (No Scale): Displays the coefficients without any magnification and provides a standard representation of the wavelet decomposition.

(b) Magnified by Scale Factor (scale = 8): Enlarges the coefficients by a factor of 8 and enhances fine details and highlights small-scale variations in the image.

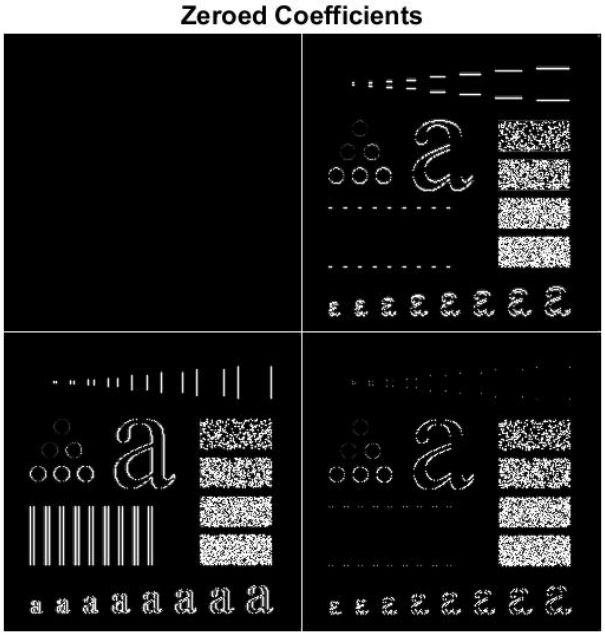
(c) Magnify Absolute Values by Negative Scale Factor (scale = -8): Magnifies the absolute values of coefficients by a factor of 8 and emphasizes the magnitude of coefficients while potentially revealing features with both positive and negative values.

Problem 3

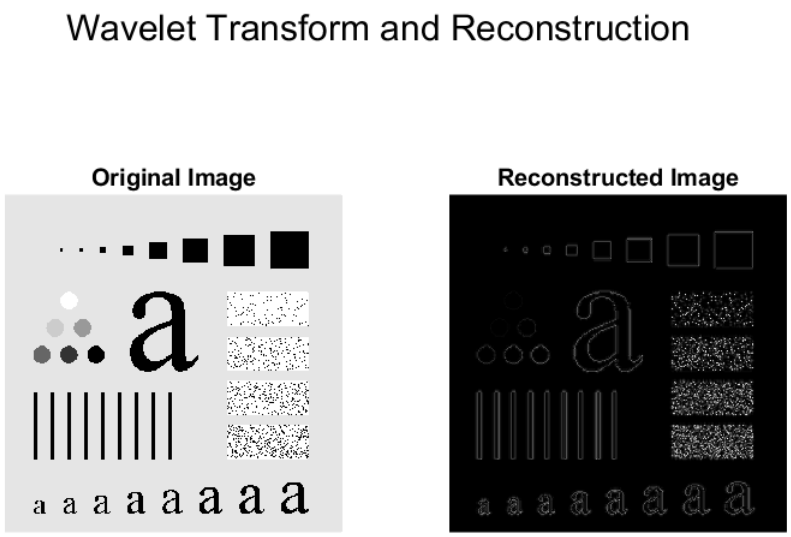
(a) horizontal, vertical, and diagonal of the original image



(b) 理論上應該有些係數被捨棄，不過肉眼上似乎看不太出來問題



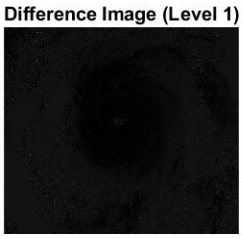
(c) 可看到幾乎只剩下影像邊緣的部分被留下來，效果有如高通濾波。

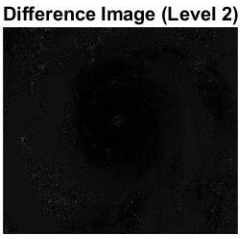


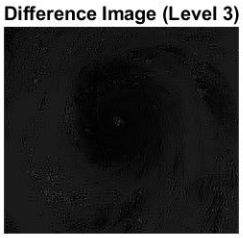
Problem 4

(a)

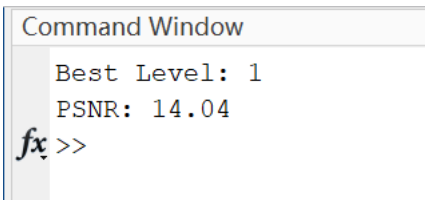
(b)

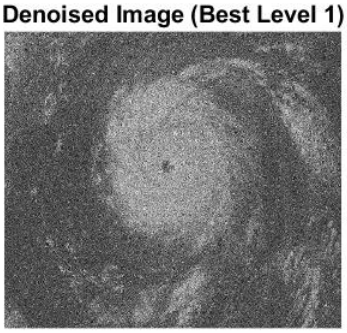


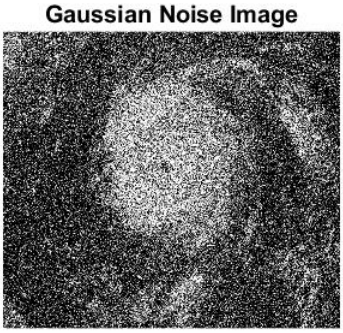




(c) $Best\ level\ =\ 1, PSNR\ =\ 14.04$

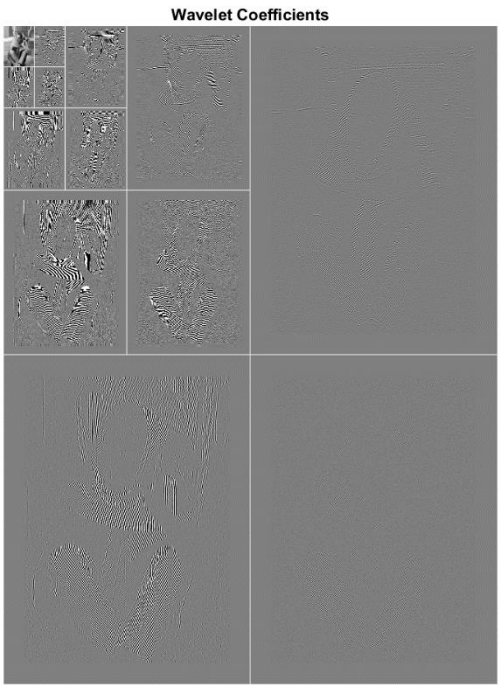






Problem 5

Coefficient:



(a)

(b) 兩張圖片相同

```
Command Window
>> all(difference_image(:)) == 0

ans =

  logical

   1

fx >>
```