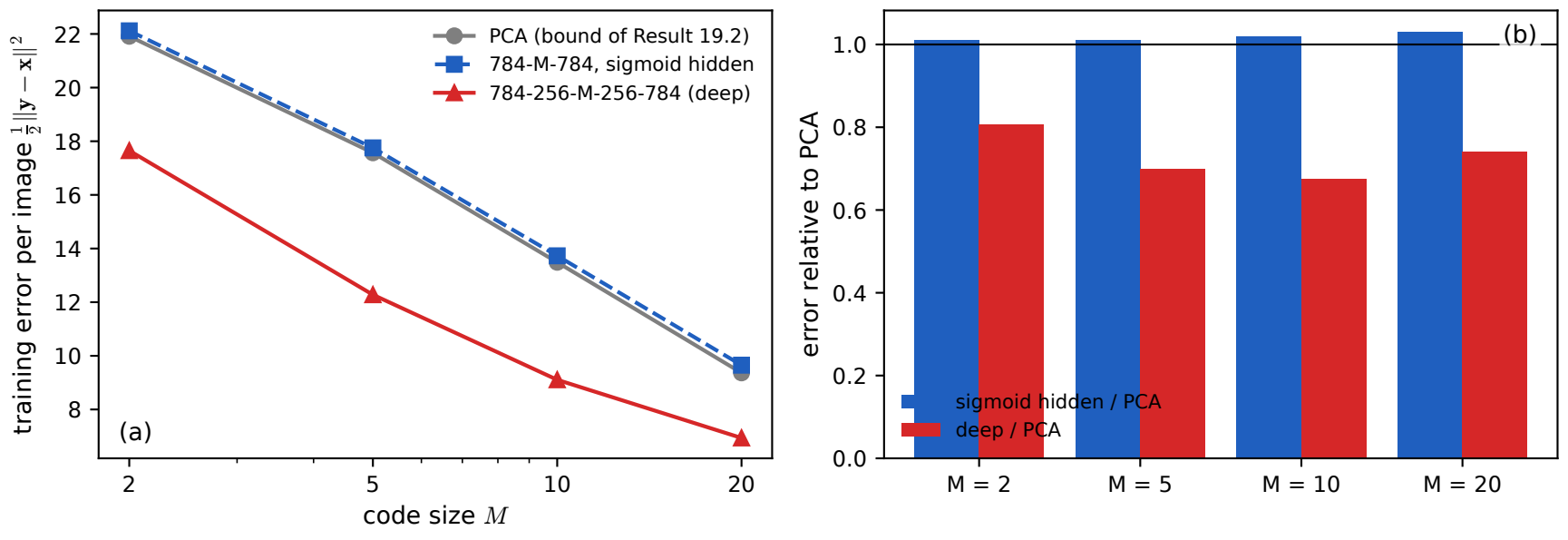

PCA (bound of Result 19.2)
784-M-784, sigmoid hidden
784-256-M-256-784 (deep)
training error per image $\frac{1}{2}\|\mathbf{y}-\mathbf{x}\|^2$
code size M
(a)
22
20
18
16
14
12
10
8
2
5
10
20
(b)
error relative to PCA
sigmoid hidden / PCA
deep / PCA
1.0
0.8
0.6
0.4
0.2
0.0
M = 2
M = 5
M = 10
M = 20