

**Prep #29 - Inverse functions**

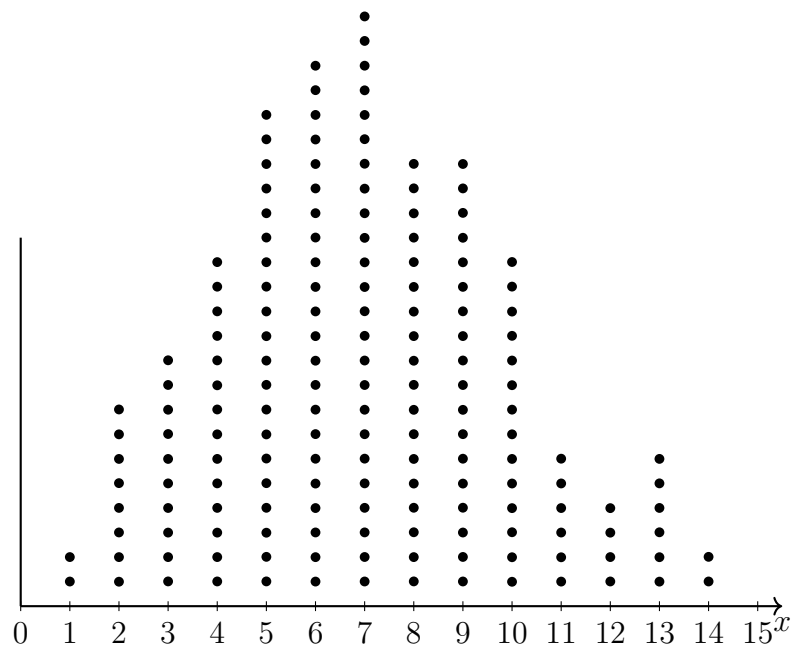
1. Given  $f(x) = 2x + 4$ . Find  $f^{-1}(x)$ .

As a check of your work, verify that  $f^{-1}(f(x)) = x$ . For example  $f(3) = 2(3) + 4 = 10$ .  
Is  $f^{-1}(10) = 3$ ?

2. Given  $f(x) = x^2 - 9$ . Find  $f^{-1}(x)$ .

3. Given  $f(x) = x^2 - 16$  and  $f^{-1}(x) = \sqrt{x - 4a}$ . Find  $a$ .

4. A simulation of student response times is run and displayed as a histogram below.



- (a) Estimate the mean response time,  $\bar{x}$ .
- (b) Estimate the standard deviation of the response times,  $\sigma$ .
- (c) Find the 95% confidence interval. Justify your answer.
- (d) An experiment is run indicating a mean response time of 4.5 seconds. Would this lead the experimenters to invalidate the assumptions of their simulation? Explain.