

MA 158

Quiz 6

5 octobre 2016

Instructions: Show all work, with clear logical steps. No work or hard-to-follow work will lose points.

Problem 1. (4 points) Find f^{-1} and the domain and range of f^{-1} for

$$f(x) = \frac{13x + 7}{2x - 1}.$$

Solution. Remember we first switch x and y then solve for y .

$$\begin{aligned} x &= \frac{13y + 7}{2y - 1} \\ x(2y - 1) &= 13y + 7 \\ 2xy - x &= 13y + 7 \\ 2xy - 13y &= 7 + x \\ (2x - 13)y &= 7 + x \\ f^{-1}(x) = y &= \frac{7 + x}{2x - 13}. \end{aligned}$$

To find the domain of f^{-1} , we see that we just can't have $x = \frac{13}{2}$. So its domain is $(-\infty, 13/2) \cup (13/2, \infty)$. The range of f^{-1} is easiest found by looking at the domain of f . It should be clear that for f we just can't have $x = \frac{1}{2}$. So the domain of f is $(-\infty, 1/2) \cup (1/2, \infty)$, which is the range of f^{-1} . ☺

Problem 2. (0 points) What is your favorite thing about Purdue/the greater Lafayette metropolitan area?