Handout 17

(1) (a) (I) $f^{-1}(x) = \left(\frac{1}{2}\right)^{\frac{x-5}{3}} + 2$

(II) $\{x \mid x > 2\}$
$\{y \mid y \in \mathbb{R}\}$

(III) $\{x \mid x \in \mathbb{R}\}$
$\{y \mid y > 2\}$

(b) (I) $f^{-1}(x) = \dfrac{\ln\left(\frac{x+7}{5}\right) - 4}{2}$

(II) $\{x \mid x \in \mathbb{R}\}$
$\{y \mid y > -7\}$

(III) $\{x \mid x > -7\}$
$\{y \mid y \in \mathbb{R}\}$

(c) (I) $f^{-1}(x) = 10^{2x+6}$

(II) $\{x \mid x > 0\}$
$\{y \mid y \in \mathbb{R}\}$

(III) $\{x \mid x \in \mathbb{R}\}$
$\{y \mid y > 0\}$

(2) (a) $\{x \mid x < -5 \text{ or } x > 2\}$

(b) $\{x \mid -3 < x < 4\}$

(c) $\{x \mid x < -2 \text{ or } x > 0\}$

(d) $\{x \mid x \in \mathbb{R}\}$

(3) No