

Solutions

Each answer shows the steps, then the **result**.

2.1

- $g(3) = 9$; $f(9) = 2(9) - 5 = 13$

2.2

- a translation **down** by 4

3.1 A

- $y = 3 - 2x \Rightarrow x = \frac{3-y}{2}$, so $f^{-1}(x) = \frac{3-x}{2}$

3.2

(a)

- $x^2 - 6x + 5 = (x-3)^2 - 4$; for $x \geq 3$, range is $f(x) \geq -4$

(b)

- $y = (x-3)^2 - 4 \Rightarrow x = 3 + \sqrt{x+4}$
- $f^{-1}(x) = 3 + \sqrt{x+4}$; domain $x \geq -4$

3.3

- translation left by 1 ($x \rightarrow x+1$); then a stretch in the y -direction, scale factor 2