

Exercise walk-through

3.3

Functions

Pearson Edexcel · International GCSE · Mathematics A

Exercises 2.1·2.3

2.1 (Higher) For $f(x)=2x+3$, find f inverse(11).

2.2 (Higher) For $f(x)=2x+3$ and $g(x)=x^2$, find $fg(4)$.

2.3 (Higher) For $f(x)=\sqrt{(x-2)}$, find $f(11)$.

3 Exam-style questions

Exercises 2.1·2.3

2.1 (Higher) For $f(x)=2x+3$, find f inverse(11).

2.1 Solve $2x+3=11$, giving $x=4$.

2.2 (Higher) For $f(x)=2x+3$ and $g(x)=x^2$, find $fg(4)$.

2.2 Apply g first: $g(4)=16$; then $f(16)=2 \times 16 + 3 = 35$.

2.3 (Higher) For $f(x)=\sqrt{(x-2)}$, find $f(11)$.

3 Exam-style questions

2.3 Substitute into the square root: $\sqrt{(11-2)}=\sqrt{9}=3$.

Exercise 3.1

3.1 Decide whether this claim is true. Justify with a concrete calculation or counterexample: Every quadratic function on all real numbers has an inverse function.

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3.1 Decide whether this claim is true. Justify with a concrete calculation or counterexample: Every quadratic function on all real numbers has an inverse function.

3.1 False. For $f(x)=x^2$, $f(-1)=f(1)=1$, so the inverse would have two outputs for input 1. Restricting the domain, for example $x \geq 0$, makes an inverse function possible.

Local review guidance: show the chosen method; give the checked result; explain the condition or failed shortcut. This is authored classroom guidance.