



Test Prep

Gridded Response

59. Solve $\sqrt{4x - 23} - 3 = 2$. **12**
60. Solve $(x + 2)^{\frac{3}{4}} = 27$. **79**
61. Solve $\sqrt{2x + 1} - \sqrt[4]{x + 11} = 0$. **5/4, or 1.25**
62. Solve $5\sqrt{x} + 7 = 8$. **1/25, or 0.04**
63. Solve $-\sqrt[3]{x + 3} = 0$. **27**
64. Solve $\sqrt{x + 2} = x$. **2**



Test Prep

Multiple Choice

85. Let $f(x) = -4x + 1$ and $g(x) = 2x - 6$. Find $(g - f)(x)$. **B**
 A. $6x - 5$ B. $6x - 7$ C. $-6x + 5$ D. $-6x + 7$
86. If $f(x) = 2x^2$ and $g(x) = 3x$, what is $(g \circ f)(x)$? **F**
 F. $6x^2$ G. $9x^2$ H. $18x^2$ J. $8x^4$
87. Let $f(x) = 2x - 3$ and $g(x) = -x^2 - 1$. Find $(g \circ f)(x)$. **B**
 A. $-2x^3 + 3x^2 - 2x + 3$ B. $-4x^2 + 12x - 10$
 C. $-x^2 + 2x - 4$ D. $-x^2 - 2x + 2$

88. If $(f \circ g)(x) = x^2 - 6x + 8$ and $g(x) = x - 3$, which expression could represent $f(x)$? **H**
 F. $x - 4$ G. $x - 1$ H. $x^2 - 1$ J. $x^2 - 6x + 5$
89. Let $g(x) = x - 3$ and $h(x) = x^2 + 6$. Find $(h \circ g)(1)$. **D**
 A. -14 B. 4 C. 5 D. 10

92. [2] $(f \circ g)(-1) =$
 $f(-1 - 6) = f(-7)$
 $= 2(-7) + 9 = -5$

[1] one minor computational error, OR no work shown

Short Response

93. [2] $\left(\frac{g}{h}\right)(x) = \frac{x^2 - 4}{4x - 6}$

[1] Answer only OR minor error

90. If $f(x) = 3 - x$ and $g(x) = x^2 - 3$, which expression has the greatest value? **H**
 F. $(g \circ f)(-3)$ G. $(f \circ g)(-3)$ H. $(f \cdot g)(-3)$ J. $(g - f)(-3)$
91. If $f(x) = x^2$ and $g(x) = x - 1$, which statement is true? **C**
 A. $(f \circ g)(x) \geq (g \circ f)(x)$ for all values of x .
 B. $(f \circ g)(x) \leq (g \circ f)(x)$ for all values of x .
 C. $(f \circ g)(x) = (g \circ f)(x)$ only for $x = 1$.
 D. $(f \circ g)(x) \neq (g \circ f)(x)$ for any value of x .

92. Let $f(x) = 2x + 9$ and $g(x) = x - 6$. Find $(f \circ g)(-1)$. Show your work. **See left.**

93. Let $g(x) = x^2 - 4$ and $h(x) = 4x - 6$. Find $\left(\frac{g}{h}\right)(x)$. **See left.**

94. If $f(x) = 3x - 4$ and $g(x) = x + 3$, what does $(f \cdot g)(x)$ mean? What is $(f \cdot g)(x)$? Simplify the answer. **See margin.**

$(f \cdot g)(x) = (3x - 4)(x + 3)$; yes $(f \cdot g)(x) = 3x^2 + 5x - 12$; yes $(f \cdot g)(x) = 3x^2 + 5x - 12$; yes



Test Prep

Multiple Choice

69. What is the inverse of $y = 5x - 1$? **B**
 A. $y = 5x + 1$ B. $y = \frac{x+1}{5}$ C. $y = \frac{x}{5} + 1$ D. $y = \frac{x}{5} - 1$
70. If $f(x) = 4x - 3$, what is $(f^{-1} \circ f)(10)$? **G**
 F. $\frac{13}{4}$ G. 10 H. 37 J. $\frac{481}{4}$

71. What is the inverse of $y = x^2 - 3$? **C**

A. $y = \pm\sqrt{x} + 3$

C. $y = \pm\sqrt{x+3}$

B. $y = \pm\sqrt{x} - 3$

D. $y = \pm\sqrt{x-3}$

72. What is the inverse of $y = 4x^2 + 5$? For what values of x is the inverse a real number? **See margin.**

73. What is the inverse of $y = x^2 - 2x + 1$? Is the inverse a function? Explain. **See margin.**

72. [2] $y^2 = \frac{x-5}{4}$, and

$$y = \pm \frac{\sqrt{x-5}}{2}.$$

The inverse has values that are real numbers when $x \geq 5$.

[1] $y = \pm \frac{\sqrt{x-5}}{2}$ OR

$x \geq 5$ OR minor error

73. [4] $x = y^2 - 2y + 1$ or
 $x = (y - 1)^2$. Then

$$y - 1 = \pm\sqrt{x} \text{ or}$$

$$y = \pm\sqrt{x} + 1. \text{ It is}$$

not a function because each positive value of x gives two values of y .

[3] minor error in finding inverse

[2] attempt to find inverse and a statement that the inverse is not a function

[1] attempt to find inverse OR a statement that the inverse is not a function