

NAME: _____

1. 010209b, P.I. A2.A.44

If a function is defined by the equation $y = 3x + 2$, which equation defines the inverse of this function?

- [A] $y = \frac{1}{3}x - \frac{2}{3}$ [B] $y = -3x - 2$
[C] $y = \frac{1}{3}x + \frac{1}{2}$ [D] $x = \frac{1}{3}y + \frac{1}{2}$

2. 080918b, P.I. A2.A.44

What is the inverse of the function $y = 2x - 3$?

- [A] $y = \frac{x}{2} + 3$ [B] $y = \frac{x+3}{2}$
[C] $y = \frac{1}{2x-3}$ [D] $y = -2x + 3$

3. 080205b, P.I. A2.A.44

A function is defined by the equation $y = 5x - 5$. Which equation defines the inverse of this function?

- [A] $x = \frac{1}{5y-5}$ [B] $y = \frac{1}{5x-5}$
[C] $y = 5x + 5$ [D] $x = 5y - 5$

4. 080319b, P.I. A2.A.44

A function is defined by the equation $y = \frac{1}{2}x - \frac{3}{2}$. Which equation defines the inverse of this function?

- [A] $y = 2x + 3$ [B] $y = 2x - 3$
[C] $y = 2x - \frac{3}{2}$ [D] $y = 2x + \frac{3}{2}$

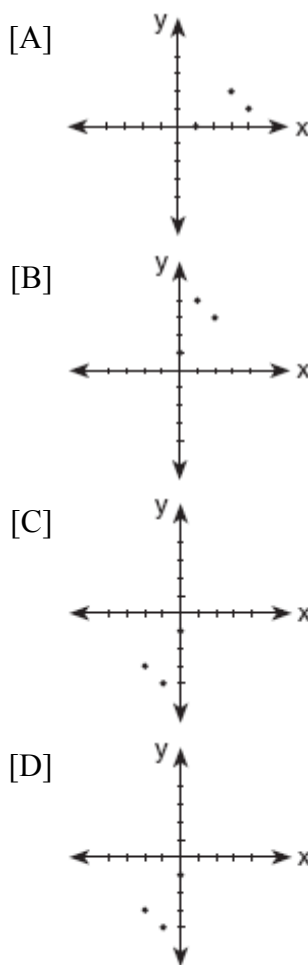
5. 080216b, P.I. A2.A.44

If the point (a, b) lies on the graph $y = f(x)$, the graph of $y = f^{-1}(x)$ must contain point

- [A] $(-a, -b)$ [B] $(a, 0)$
[C] $(0, b)$ [D] (b, a)

6. 060220b, P.I. A2.A.44

Which graph represents the inverse of $f(x) = \{(0, 1), (1, 4), (2, 3)\}$?

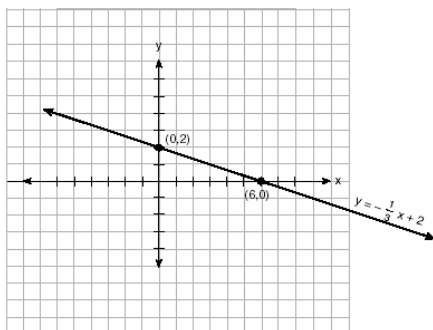


NAME: _____

7. 010521b, P.I. A2.A.44

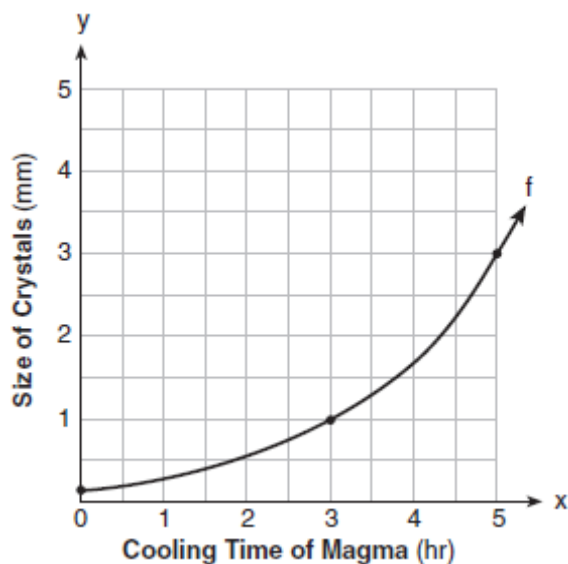
The accompanying diagram shows the graph of the line whose equation is $y = -\frac{1}{3}x + 2$.

On the same set of axes, sketch the graph of the inverse of this function. State the coordinates of a point on the inverse function.



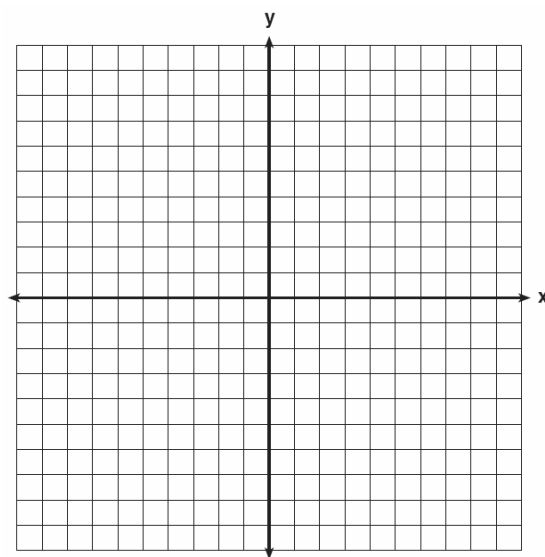
8. 060926b, P.I. A2.A.44

The accompanying graph shows the relationship between the cooling time of magma and the size of the crystals produced after a volcanic eruption. On the same graph, sketch the inverse of this function.



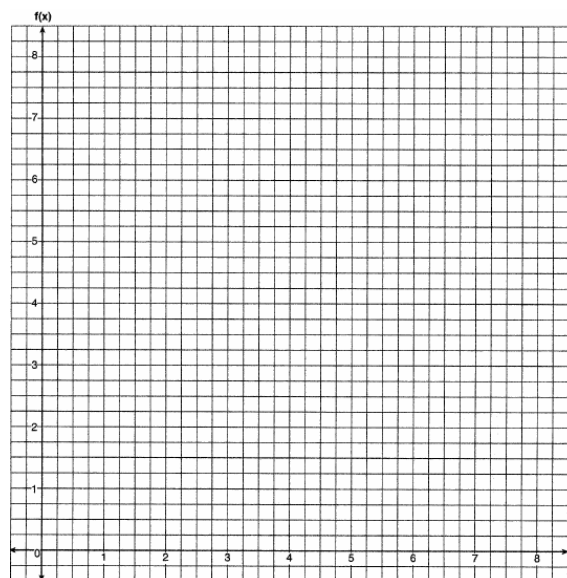
9. 080826b, P.I. A2.A.44

On the accompanying set of axes, graph the function $f(x) = 2x + 4$ and its inverse, $f^{-1}(x)$.



10. 060130b, P.I. A2.A.44

Draw $f(x) = 2x^2$ and $f^{-1}(x)$ in the interval $0 \leq x \leq 2$ on the accompanying set of axes. State the coordinates of the points of intersection.



NAME: _____

11. 010914b, P.I. A2.A.44

Given the relation

$$A: \{(3,2), (5,3), (6,2), (7,4)\}$$

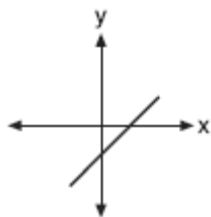
Which statement is true?

- [A] Both A and A^{-1} are functions.
[B] Neither A nor A^{-1} are functions.
[C] Only A is a function.
[D] Only A^{-1} is a function.

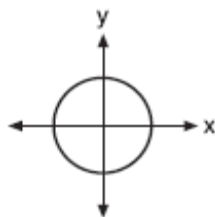
12. 080712b, P.I. A2.A.44

Which graph has an inverse that is a function?

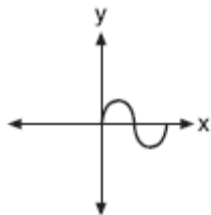
[A]



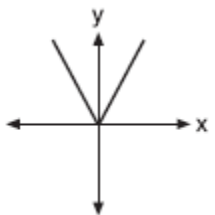
[B]



[C]



[D]



13. 010332b, P.I. A2.A.44

Given: $f(x) = x^2$ and $g(x) = 2^x$

a The inverse of g is a function, but the inverse of f is not a function. Explain why this statement is true.

b Find $g^{-1}(f(3))$ to the nearest tenth.

14. 080416b, P.I. A2.A.44

What is the inverse of the function
 $y = \log_4 x$?

- [A] $4^y = x$ [B] $x^4 = y$
[C] $y^4 = x$ [D] $4^x = y$

15. 060115b, P.I. A2.A.44

The inverse of a function is a logarithmic function in the form $y = \log_b x$. Which equation represents the original function?

- [A] $y = b^x$ [B] $y = bx$
[C] $by = x$ [D] $x = b^y$

[1] A _____

[2] B _____

[3] D _____

[4] A _____

[5] D _____

[6] A _____

[2] An appropriate reflection of $f(x)$ in the line $y = x$ is sketched, and the coordinates of one point are stated correctly.

[1] An appropriate graph is sketched, but no coordinates or incorrect coordinates are stated.

or [1] A reflection in some other line is sketched, but appropriate coordinates are stated.

or [1] An incorrect graph is sketched, based on an error in plotting one of the points, but appropriate coordinates are stated.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[7] incorrect procedure.

[2] The inverse function is graphed correctly.

[1] One graphing error is made.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[8] incorrect procedure.

[2] Both $f(x)$ and $f^{-1}(x)$ are graphed correctly and at least one is labeled.

[1] Appropriate work is shown, but one graphing error is made.

or [1] Appropriate work is shown, but one conceptual error is made, such as graphing the inverse as a reflection over an axis.

or [1] $f(x)$ is graphed incorrectly, but an appropriate graph is drawn for $f^{-1}(x)$.

or [1] A correct equation for $f^{-1}(x)$ is written, but no graphs are drawn.

[0] $f(x)$ is graphed correctly, but no further correct work is shown.

or [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an

[9] obviously incorrect procedure.

[4] $(0,0)$ and $(\frac{1}{2}, \frac{1}{2})$, and both graphs are drawn correctly.

[3] Both graphs are drawn correctly, but one or both points of intersection are stated incorrectly.

or [3] The graph of $y = 2x^2$ is incorrect, but the inverse is appropriate or correct, and the appropriate points of intersection are stated correctly.

[2] Both points of intersection are found correctly, using an algebraic solution.

or [2] The graph of $y = 2x^2$ is incorrect, but the inverse is appropriate or correct, but no further work is shown.

or [2] The graph of $y = 2x^2$ is correct, but the inverse is incorrect, but the appropriate points of intersection are stated.

or [2] The graph of $y = 2x^2$ is incorrect, but the inverse is correct, but the points of intersection are not stated or are incorrect.

[1] Both graphs are incorrect, but the points of intersection are appropriate, based on the incorrect graphs.

or [1] The graph of $y = 2x^2$ is correct, but the inverse is incorrect, and the points of intersection are labeled or stated incorrectly.

or [1] $(0,0)$ and $(\frac{1}{2}, \frac{1}{2})$, but no work is shown.

[0] Straight lines are used as graphs of the functions.

or [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an

[10] obviously incorrect procedure.

[11] C

[12] A

a [2] Appropriate sketches of the functions are shown, and the horizontal line tests are used to explain why the statement is true.

or [2] An explanation is given that the inverse of g is a function and the inverse of f is not a function, which includes a definition of the relationship between a function and its inverse or the vertical line test.

or [2] Appropriate sketches of the inverses are shown that use the vertical line test to explain why the statement is true.

or [2] The correct inverses are found algebraically, and appropriate explanations are given.

[1] An explanation is given that indicates only that g is a 1:1 function or that g passes the horizontal line test.

or [1] An explanation is given that indicates only that f is not a 1:1 function or that f does not pass the horizontal line test.

b [2] 3.2, and appropriate work is shown.

[1] Appropriate work is shown, but one computational or rounding error is made.

or [1] 3.2, but no work is shown.

a and b [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an

[13] obviously incorrect procedure.

[14] D

[15] A