

Name:

Partners:

Math Academy I

Date:

Review 2 Version A

[A] Circle whether each statement is true or false.

T F 1. $3^{\log_3 5x} = 5x$

T F 2. $p^{5/3} = (\sqrt[5]{p})^3$

T F 3. $b^{-1}(b(4)) = 1/4$

T F 4. $(b \circ n)(x) = b(n(x))$

T F 5. If $\ln x = 4$, then $x = e^4$.

T F 6. $f(x) = x^2$ is one-to-one.

T F 7. $q(x) = x^5$ is an exponential function.

T F 8. The inverse of $g(x) = 9^x$ is $g^{-1}(x) = \log_9 x$.

T F 9. The equation of $a(x)$ at right could be $a(x) = 0.4^x$.

T F 10. The equation of $b(x)$ at right could be $b(x) = \ln x$.

T F 11. If $f(g(x)) = g(f(x))$, then f and g are inverses of each other.

T F 12. The graph of $g(x) = \log_w x$ passes through the point $(0, 1)$.

T F 13. The inverse of $f(x)$ = the ID number of student x is $f^{-1}(x)$ = the student with ID number x .

T F 14. Translating a graph up 4 units and then reflecting it vertically yields the same image as reflecting it vertically and then translating it up 4 units.

T F 15. If a bacteria colony starts at a population of 4000 and is increasing by 175% per day, the equation $9000 = 4000(1.75)^t$ could be used to solve for how long it will take to increase to 9000.

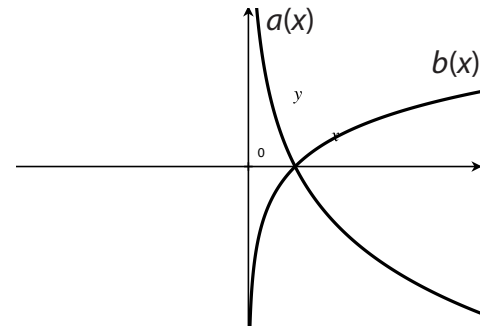
[B] Find a value or simplified expression, using the functions $a(x) = x^2 + 4x + 1$ and $b(x) = 2x + 4$.

1. $(b \circ a)(3)$

2. $b(b(a(3)))$

3. $a(b(x))$

4. $b^{-1}(x)$



[C] State the domain of the following functions.

1. $b(x) = -4\sqrt{2x + 11}$

2. $b(x) = \frac{x+2}{x^2-16}$

[D] Find all real solutions, if any, rounded to the nearest hundredth.

1. $3(2x - 9)^{5/3} + 100 = 4$

2. $3(2x - 9)^{4/3} + 100 = 4$

3. $16 + 4^{3x+2} = 229$

4. $2 \log_4 20x = 10$

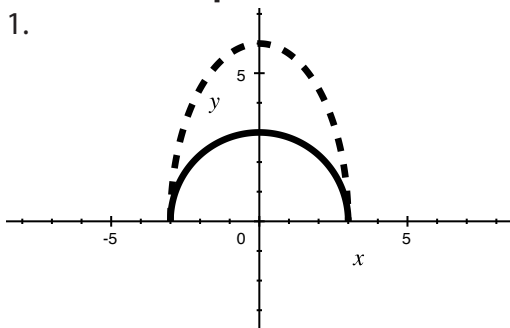
5. How long will it take \$1200 to turn into \$2000 if it is compounded quarterly at an annual rate of 2.14%?

[E] Sketch. Label three points with integer coordinates.

1. $a(x) = 2 + \sqrt[3]{x}$

[F] Write the equation of the dotted curve, given the solid curve is $f(x) = \sqrt{9 - x^2}$. Simplify.

1.



[F] Do the following to organize your group's reviews.

1. Make sure your name and your partners' names are at the top of your review the first day.
2. Staple the reviews in order, all facing the same way. Put the staple in the very top left corner if everyone is finished or if the review is due; otherwise put the staple in the top right corner.

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Review 2 Version B

[A] Circle whether each statement is true or false.

T F 1. $3^{\log_3 5x} = 5x$

T F 2. $p^{5/3} = (\sqrt[5]{p})^3$

T F 3. $b^{-1}(b(4)) = 1/4$

T F 4. $(b \circ n)(x) = b(n(x))$

T F 5. If $\ln x = 4$, then $x = e^4$.

T F 6. $f(x) = x^2$ is one-to-one.

T F 7. $q(x) = x^5$ is an exponential function.

T F 8. The inverse of $g(x) = 9^x$ is $g^{-1}(x) = \log_9 x$.

T F 9. The equation of $a(x)$ at right could be $a(x) = 0.4^x$.

T F 10. The equation of $b(x)$ at right could be $b(x) = \ln x$.

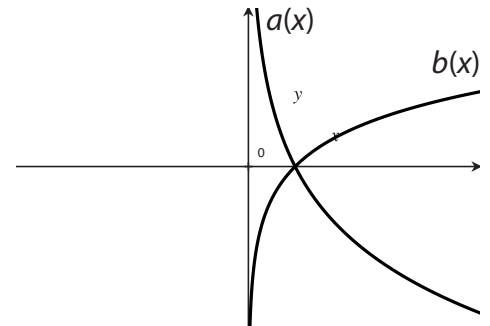
T F 11. If $f(g(x)) = g(f(x))$, then f and g are inverses of each other.

T F 12. The graph of $g(x) = \log_w x$ passes through the point $(0, 1)$.

T F 13. The inverse of $f(x) =$ the ID number of student x is $f^{-1}(x) =$ the student with ID number x .

T F 14. Translating a graph up 4 units and then reflecting it vertically yields the same image as reflecting it vertically and then translating it up 4 units.

T F 15. If a bacteria colony starts at a population of 4000 and is increasing by 175% per day, the equation $9000 = 4000(1.75)^t$ could be used to solve for how long it will take to increase to 9000.



[B] Find a value or simplified expression, using the functions $a(x) = x^2 + 4x + 1$ and $b(x) = 2x + 4$.

1. $(b \circ a)(3)$

2. $b(b(a(3)))$

3. $a(b(x))$

4. $b^{-1}(x)$

[C] State the domain of the following functions.

1. $b(x) = -4(\sqrt{2x - 20}) \log(x - 36)$

2. $b(x) = \frac{x+2}{x^2 - 100}$

[D] Find all real solutions, if any, rounded to the nearest hundredth.

1. $2(2x - 9)^{4/5} - 54 = 44$

2. $2(2x - 9)^{4/5} - 54 = 44$

3. $16 + 4(2)^{3x+2} = 229$

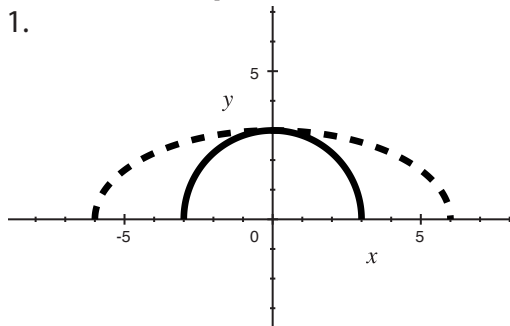
4. $2 \ln 20x = 6$

3. How long will it take \$1000 to turn into \$3000 if it is compounded annually at an annual rate of 4%?

[E] Sketch. Label three points with integer coordinates.

1. $a(x) = 2 + \sqrt[3]{x+4}$

[F] Write the equation of the dotted curve, given the solid curve is $f(x) = \sqrt{9 - x^2}$. Simplify.



[F] Bonus. State the range of the following functions.

1. $a(x) = -3x^2$

2. $b(x) = \sin x$

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Review 2 Version C

[A] Circle whether each statement is true or false.

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T F 2. $p^{5/3} = (\sqrt[5]{p})^3$

T F 3. $b^{-1}(b(4)) = \frac{1}{4}$

T F 4. $(b \circ n)(x) = b(n(x))$

T F 5. If $\ln x = 4$, then $x = e^4$.

T F 6. $f(x) = x^2$ is one-to-one.

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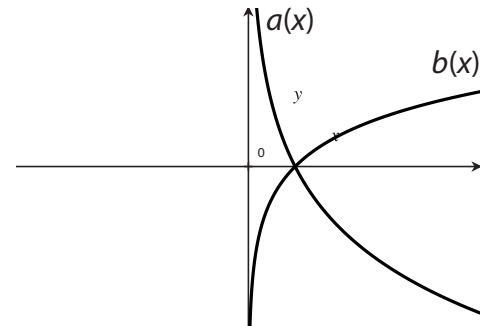
T F 11. If $f(g(x)) = g(f(x))$, then f and g are inverses of each other.

T F 12. The graph of $g(x) = \log_w x$ passes through the point $(0, 1)$.

T F 13. The inverse of $f(x)$ = the ID number of student x is $f^{-1}(x)$ = the student with ID number x .

T F 14. Translating a graph up 4 units and then reflecting it vertically yields the same image as reflecting it vertically and then translating it up 4 units.

T F 15. If a bacteria colony starts at a population of 4000 and is increasing by 175% per day, the equation $9000 = 4000(1.75)^t$ could be used to solve for how long it will take to increase to 9000.



[B] Find a value or simplified expression, using the functions $a(x) = x^2 + 4x + 1$ and $b(x) = 2x + 4$.

1. $(b \circ a)(3)$

2. $b(b(a(3)))$

3. $a(b(x))$

4. $b^{-1}(x)$

[C] State the domain of the following functions.

1. $b(x) = -4(\sqrt{4x + 62}) \log(3x + 30)$

2. $b(x) = \frac{4x + 12}{2x^2 - 50}$

[D] Find all real solutions, if any, rounded to the nearest hundredth.

1. $3(2x - 9)^{4/7} - 18 = 45$

2. $6(x + 1)^{5/4} + 21 = 33$

3. $16 + 4(1/2)^{3x+2} = 229$

4. $2 \log_{1/4} 20x = -10$

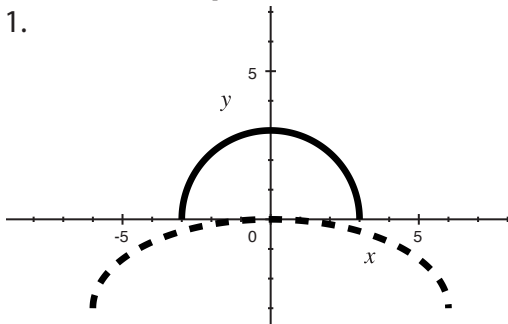
3. How long will it take \$3200 to triple if it is compounded daily at an annual rate of 0.93%?

[E] Sketch. Label three points with integer coordinates.

1. $a(x) = 2 + \log_2(x - 5)$

[F] Write the equation of the dotted curve, given the solid curve is $f(x) = \sqrt{9 - x^2}$. Simplify.

1.



[F] Bonus. State the range of the following functions.

1. $a(x) = -3x^2$

2. $b(x) = \sin x$

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Review 2 Version D

[A] Circle whether each statement is true or false.

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T F 3. $b^{-1}(b(4)) = \frac{1}{4}$

T F 4. $(b \circ n)(x) = b(n(x))$

T F 5. If $\ln x = 4$, then $x = e^4$.

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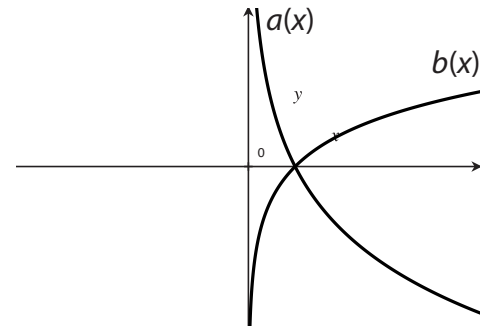
T F 11. If $f(g(x)) = g(f(x))$, then f and g are inverses of each other.

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[B] Find a value or simplified expression, using the functions $a(x) = x^2 + 4x + 1$ and $b(x) = 2x + 4$.

1. $(b \circ a)(3)$

2. $b(b(a(3)))$

3. $a(b(x))$

4. $b^{-1}(x)$

[C] State the domain of the following functions.

1. $b(x) = -4(\sqrt{20 - 2x}) \log(x^2 - 36)$

2. $b(x) = \frac{6x - 9}{x^2 - 5x - 14}$

[D] Find all real solutions, if any, rounded to the nearest hundredth.

1. $3(2x - 11)^{4/5} + 100 = 4$

2. $-2(5x - 8)^{4/3} + 24 = 8$

3. $16 + 4(1/2)^{3x+2} = 16.05$

4. $2 \log (x + 4)^2 = 5$

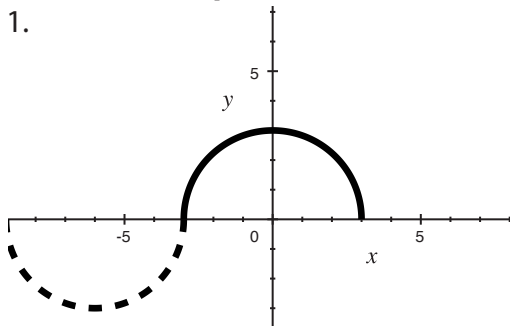
5. How long will it take \$3200 to increase by 300% if it is compounded daily at an annual rate of 0.93%?

[E] Sketch. Label three points with integer coordinates.

1. $a(x) = 2 + \log_2 (2x - 4)$

[F] Write the equation of the dotted curve, given the solid curve is $f(x) = \sqrt{9 - x^2}$. Simplify.

1.



[F] Bonus. State the range of the following functions.

1. $a(x) = -3x^2$

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