

Name:

Partners:

PreCalculus

Date:

Review 1 Version A

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

- T F 1. $b^{-1}(b(4)) = \frac{1}{4}$
- T F 2. $f(x) = x^2$ is one-to-one.
- T F 3. The vertex of $y = \frac{3}{4}(x + 4)^2 - 9$ is (4, -9).
- T F 4. The range of a parabola is all real numbers.
- T F 5. The domain of a parabola is all real numbers.
- T F 6. The relation $\{(3, 0), (15, 3), (0, 0)\}$ is a function.
- T F 7. The number .01002000 has four significant figures.
- T F 8. In the function $f(h) = \log 5h$, the independent variable is h .
- T F 9. The horizontal line test finds whether or not the inverse of a graph is a function.
- T F 10. The inverse of " $f(x)$ = the ID number of student" x is " $f^{-1}(x)$ = the student with ID number x ".

[B] State the domain of the following functions.

1. $b(x) = -4\sqrt{2x + 11}$
2. $b(x) = \frac{x+2}{x^2 - 16}$

[C] For the rest of this review, do not write anything that is not an equation.

1. An equation is two equal expressions with an equals sign between them. Circle each true equation below, and cross out each item that is incorrect or not an equation.

- a) $2(3) = 6 + 4 = 10$
- b) $3x^2 + 2x - 9$
- c) $f(x) = -3(x - 4)^2 + 2$, given $f(x) = x^2$
- d) $2(3) = 6 = 10 - 4$
- e) $p(x) = 3x^2 + 2x - 9$
- f) $-3f(x - 4) + 2 = -3(x - 4)^2 + 2$, given $f(x) = x^2$

2. Without writing on your partners' reviews, make sure all work on everyone's review is equations, and that nothing other than equations is written. (You will all get the same grade on this item.)

[D] 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. $b^{-1}(x)$

[E] Let $a(x) = x^2 + 8x - 20$.

1. Use the discriminant to determine how many x -intercepts this parabola has.

2. Find the following.

a) the vertex

b) the x -intercepts

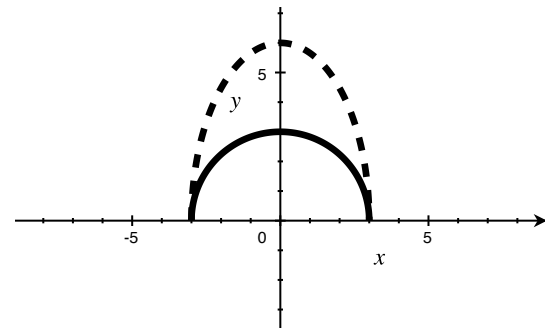
c) the y -intercept

3. Use your answers to #2 to sketch the parabola approximately to scale.

[F] Write a simplified equation for the image given the pre-image $f(x)$. Check your answers by graphing the image and the pre-image on your calculator.

1. $f(x) = 8x^2 - 6x + 3$ stretched vertically by a factor of 5 and then translated down 4 units.

2. the dotted curve, given the solid curve is $f(x) = \sqrt{9 - x^2}$



[G] 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 1 Version B

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

- T F 1. $b^{-1}(b(4)) = \frac{1}{4}$
- T F 2. $f(x) = x^2$ is one-to-one.
- T F 3. The vertex of $y = -\frac{3}{4}(x + 4)^2 - 9$ is (4, -9).
- T F 4. The range of a parabola is all real numbers.
- T F 5. The domain of a parabola is all real numbers.
- T F 6. The relation $\{(3, 0), (15, 3), (0, 0)\}$ is a function.
- T F 7. The number .01002000 has four significant figures.
- T F 8. In the function $f(h) = \log 5h$, the independent variable is h .
- T F 9. The horizontal line test finds whether or not the inverse of a graph is a function.
- T F 10. The inverse of " $f(x)$ = the ID number of student" x is " $f^{-1}(x)$ = the student with ID number x ".

[B] State the domain of the following functions.

1. $b(x) = -4(\sqrt{2x - 20}) \log(x - 36)$
2. $b(x) = \frac{x+2}{x^2 - 100}$

[C] For the rest of this review, do not write anything that is not an equation.

1. An equation is two equal expressions with an equals sign between them. Circle each true equation below, and cross out each item that is incorrect or not an equation.

- a) $2(3) = 6 + 4 = 10$
- b) $3x^2 + 2x - 9$
- c) $f(x) = -3(x - 4)^2 + 2$, given $f(x) = x^2$
- d) $2(3) = 6 = 10 - 4$
- e) $p(x) = 3x^2 + 2x - 9$
- f) $-3f(x - 4) + 2 = -3(x - 4)^2 + 2$, given $f(x) = x^2$

2. Without writing on your partners' reviews, make sure all work on everyone's review is equations, and that nothing other than equations is written. (You will all get the same grade on this item.)

[D] Find a value or simplified expression, using the functions $a(x) = x^2 + 4x + 1$ and $b(x) = 8x + 4$.

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

3. $a(b(x))$

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

[E] Let $a(x) = 2x^2 + 8x - 10$.

1. Use the discriminant to determine how many x -intercepts this parabola has.

2. Find the following.

a) the vertex

b) the x -intercepts

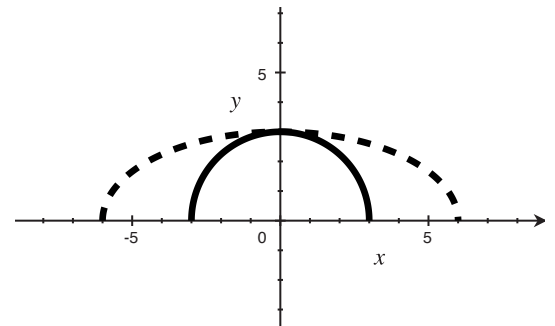
c) the y -intercept

3. Use your answers to #2 to sketch the parabola approximately to scale.

[F] Write a simplified equation for the image given the pre-image $f(x)$. Check your answers by graphing the image and the pre-image on your calculator.

1. $g(x)$ is $f(x) = 8x^2 - 6x + 3$ translated down 4 units and then stretched vertically by a factor of 5.

2. the dotted curve, given the solid curve is $f(x) = \sqrt{9 - x^2}$



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

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

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

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Review 1 Version C

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

- T F 1. $b^{-1}(b(4)) = \frac{1}{4}$
- T F 2. $f(x) = x^2$ is one-to-one.
- T F 3. The vertex of $y = -\frac{3}{4}(x + 4)^2 - 9$ is (4, -9).
- T F 4. The range of a parabola is all real numbers.
- T F 5. The domain of a parabola is all real numbers.
- T F 6. The relation $\{(3, 0), (15, 3), (0, 0)\}$ is a function.
- T F 7. The number .01002000 has four significant figures.
- T F 8. In the function $f(h) = \log 5h$, the independent variable is h .
- T F 9. The horizontal line test finds whether or not the inverse of a graph is a function.
- T F 10. The inverse of " $f(x)$ = the ID number of student" x is " $f^{-1}(x)$ = the student with ID number x ".

[B] State the domain of the following functions.

1. $b(x) = -4(\sqrt{4x + 62}) \log(3x + 30)$
2. $b(x) = \frac{4x + 12}{2x^2 - 50}$

[C] For the rest of this review, do not write anything that is not an equation.

1. An equation is two equal expressions with an equals sign between them. Circle each true equation below, and cross out each item that is incorrect or not an equation.

a) $2(3) = 6 + 4 = 10$

b) $3x^2 + 2x - 9$

c) $f(x) = -3(x - 4)^2 + 2$, given $f(x) = x^2$

d) $2(3) = 6 = 10 - 4$

e) $p(x) = 3x^2 + 2x - 9$

f) $-3f(x - 4) + 2 = -3(x - 4)^2 + 2$, given $f(x) = x^2$

2. Without writing on your partners' reviews, make sure all work on everyone's review is equations, and that nothing other than equations is written. (You will all get the same grade on this item.)

[D] Find a value or simplified expression, using the functions $a(x) = x^2 + 4x + 1$ and $b(x) = 0.5x + 4$.

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

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

3. $a(b(x))$

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

[E] Let $a(x) = 6x^2 + 7x - 20$.

1. Use the discriminant to determine how many x -intercepts this parabola has.

2. Find the following.

a) the vertex

b) the x -intercepts

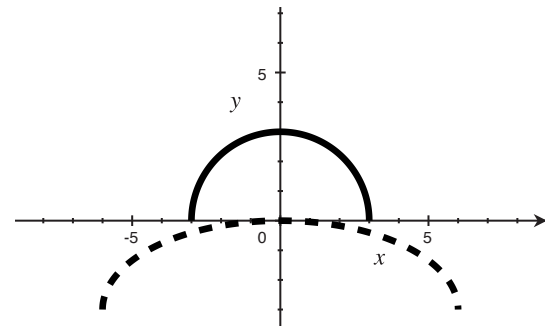
c) the y -intercept

3. Use your answers to #2 to sketch the parabola approximately to scale.

[F] Write a simplified equation for the image given the pre-image $f(x)$. Check your answers by graphing the image and the pre-image on your calculator.

1. $g(x)$ is $f(x) = 8x^2 - 6x + 3$ translated up 4 units and stretched horizontally by a factor of 2.

2. the dotted curve, given the solid curve is $f(x) = \sqrt{9 - x^2}$



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

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

2. $b(x) = 2 + 3 \sin x$

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Review 1 Version D

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

- T F 1. $b^{-1}(b(4)) = \frac{1}{4}$
- T F 2. $f(x) = x^2$ is one-to-one.
- T F 3. The vertex of $y = \frac{3}{4}(x + 4)^2 - 9$ is (4, -9).
- T F 4. The range of a parabola is all real numbers.
- T F 5. The domain of a parabola is all real numbers.
- T F 6. The relation $\{(3, 0), (15, 3), (0, 0)\}$ is a function.
- T F 7. The number .01002000 has four significant figures.
- T F 8. In the function $f(h) = \log 5h$, the independent variable is h .
- T F 9. The horizontal line test finds whether or not the inverse of a graph is a function.
- T F 10. The inverse of " $f(x)$ = the ID number of student" x is " $f^{-1}(x)$ = the student with ID number x ".

[B] State the domain of the following functions.

1. $b(x) = -4(\sqrt{20 - 2x}) \log(x^2 - 36)$
2. $b(x) = \frac{6x - 9}{x^2 - 5x - 14}$

[C] For the rest of this review, do not write anything that is not an equation.

1. An equation is two equal expressions with an equals sign between them. Circle each true equation below, and cross out each item that is incorrect or not an equation.

- a) $2(3) = 6 + 4 = 10$
- b) $3x^2 + 2x - 9$
- c) $f(x) = -3(x - 4)^2 + 2$, given $f(x) = x^2$
- d) $2(3) = 6 = 10 - 4$
- e) $p(x) = 3x^2 + 2x - 9$
- f) $-3f(x - 4) + 2 = -3(x - 4)^2 + 2$, given $f(x) = x^2$

2. Without writing on your partners' reviews, make sure all work on everyone's review is equations, and that nothing other than equations is written. (You will all get the same grade on this item.)

[D] Find a value or simplified expression, using the functions $a(x) = x^2 + 4x + 1$ and $b(x) = x^3 + 4$.

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

3. $a(b(x))$

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

[E] Let $a(x) = 6x^2 + 9x - 20$.

1. Use the discriminant to determine how many x -intercepts this parabola has.

2. Find the following.

a) the vertex

b) the x -intercepts

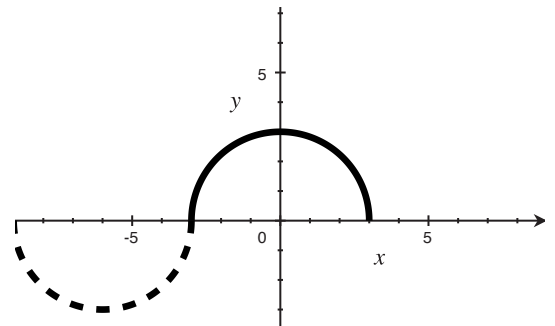
c) the y -intercept

3. Use your answers to #2 to sketch the parabola approximately to scale.

[F] Write a simplified equation for the image given the pre-image $f(x)$. Check your answers by graphing the image and the pre-image on your calculator.

1. $g(x)$ is $f(x) = 8x^2 - 6x + 3$ stretched horizontally by a factor of 5 and translated up 4 units.

2. the dotted curve, given the solid curve is $f(x) = \sqrt{9 - x^2}$



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

1. $a(x) = x^2 + 12x + 35$

2. $b(x) = 2 + 3 \tan x$