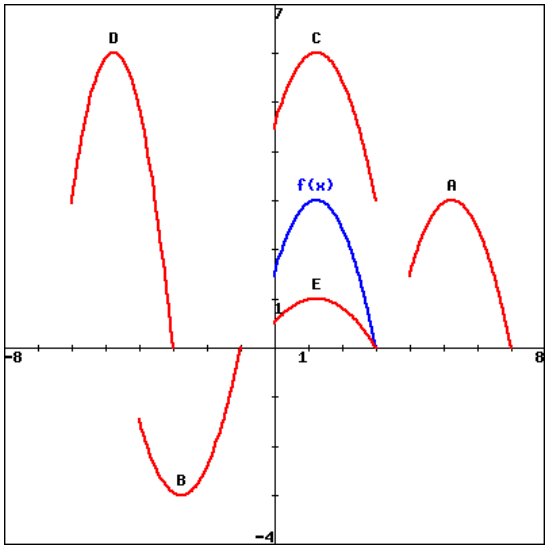
1. (1 pt) The graph of $y = f(x)$ is given below (in blue), along with several related graphs (which are in red).



Note: you can click on the graph to enlarge it.

For each equation, enter the letter of the corresponding graph.

___ $y = -f(x+4)$

___ $y = 2f(x+6)$

___ $y = \frac{1}{3}f(x)$

___ $y = f(x-4)$

___ $y = f(x)+3$

Answer(s) submitted:

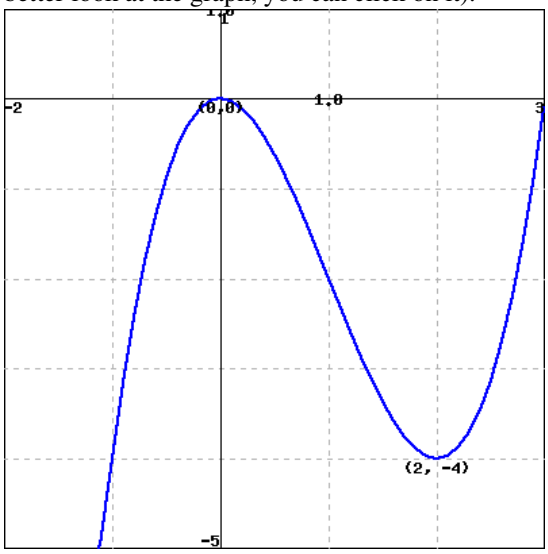
- B
- D
- E
- A
- C

(correct)

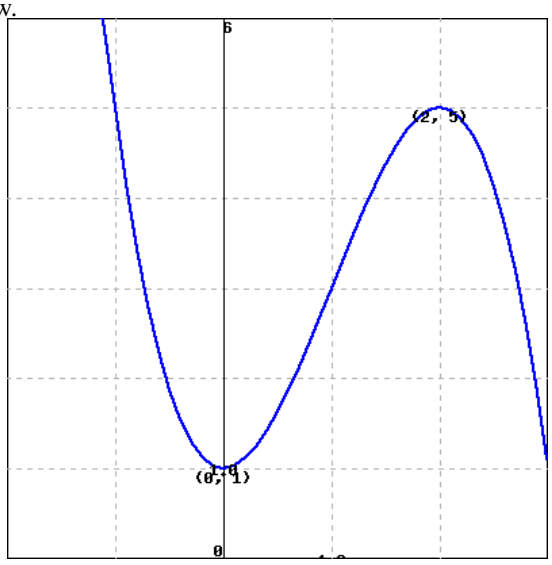
Correct Answers:

- B
- D
- E
- A
- C

2. (1 pt) The graph of $y = x^3 - 3x^2$ is given below: (to get a better look at the graph, you can click on it).



Find a formula for the transformation whose graph is given below.



a) $y =$ _____

Answer(s) submitted:

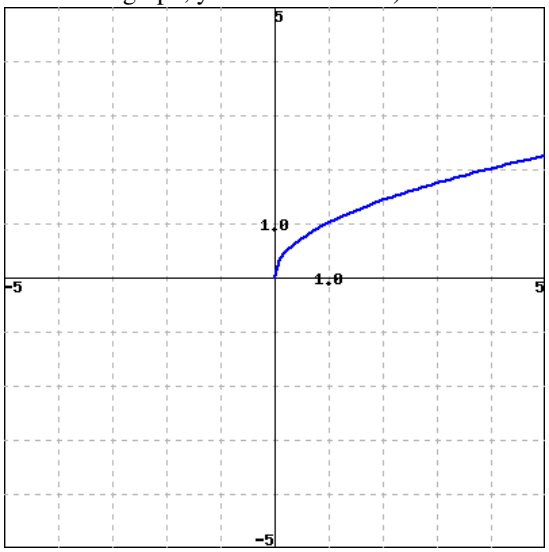
- -x^3 + 3x^2 + 1

(correct)

Correct Answers:

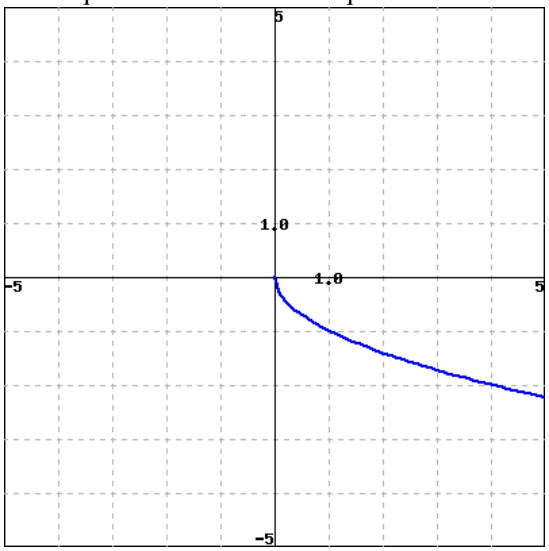
- -(x**3) + 3*(x**2) + 1

3. (1 pt) The graph of $y = \sqrt{x}$ is given below: (to get a better look at the graph, you can click on it).



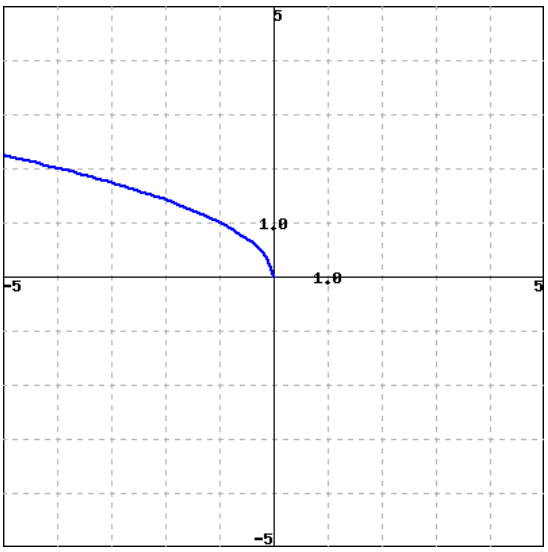
Find a formula for each of the transformations whose graphs are given below.
Recall that square root is entered as sqrt.

a)



$y =$ _____

b)



$y =$ _____

Answer(s) submitted:

- `-sqrt(x)`
- `sqrt(-x)`

(correct)

Correct Answers:

- `-sqrt(x)`
- `sqrt(-x)`

---

4. (1 pt) The graph of the function $y = f(x-2)+83$ can be obtained from the graph of $y = f(x)$ by one of the following actions:

(a) shifting the graph of $f(x)$ to the right 2 units;

(b) shifting the graph of $f(x)$ to the left 2 units;

(c) vertically stretching the graph of $f(x)$ by a factor 2;

(d) vertically shrinking the graph of $f(x)$ by a factor 2;

Your answer is ?

Then, followed by one of the following actions:

(e) shifting the resulting graph upward 83 units;

(f) shifting the resulting graph downward 83 units;

(g) horizontally stretching the resulting graph by a factor 83;

(h) horizontally shrinking the resulting graph by a factor 1/83;

Your answer is ?
Answer(s) submitted:

- a
- e

(correct)
Correct Answers:

- A
- E

---

5. (1 pt) The graph of the function $y = -42f(x)$ can be obtained from the graph of $y = f(x)$ by one of the following actions:

(a) horizontally stretching the graph of $f(x)$ by a factor 42;

(b) horizontally shrinking the graph of $f(x)$ by a factor 42;

(c) vertically stretching the graph of $f(x)$ by a factor 42;

(d) vertically shrinking the graph of $f(x)$ by a factor 42;

Your answer is ?

Then followed by one of the following actions:

(e) reflecting the resulting graph in x-axis;

(f) reflecting the resulting graph in y-axis;

Your answer is ?
Answer(s) submitted:

- c
- e

(correct)
Correct Answers:

- C
- E

---

6. (1 pt) Given that $f(x) = \sqrt{1+x}$ and $g(x) = \sqrt{1-x}$, find formulas for the following functions, and their domains. In each case, enter the domain using interval notation.

(a) $f+g$= _____ and its domain is _____
(b) $f-g$= _____ and its domain is _____
(c) fg= _____ and its domain is _____
(d) f/g= _____ and its domain is _____
Answer(s) submitted:

- sqrt(1+x) + sqrt(1-x)
- [-1, 1]
- sqrt(1+x) - sqrt(1-x)
- [-1, 1]
- sqrt(1+x) * sqrt(1-x)
- [-1, 1]
- sqrt(1+x) / sqrt(1-x)
- [-1, 1)

(correct)
Correct Answers:

- sqrt(1+x)+sqrt(1-x)
- [-1,1]
- sqrt(1+x)-sqrt(1-x)
- [-1,1]
- sqrt((1)^2-x^2)
- [-1,1]
- (sqrt(1+x))/(sqrt(1-x))
- [-1,1)

---

7. (1 pt) **Note:** If the answer is ∞, input *infinity* ; if the answer is $-\infty$, input *-infinity* .

Given that $f(x) = \frac{1}{x}$ and $g(x) = 8x+8$, calculate
(a) $f \circ g(x)$= _____, its domain is all real numbers except _____
(b) $g \circ f(x)$= _____ , its domain is all real numbers except _____
(c) $f \circ f(x)$= _____, its domain is all real numbers except _____
(d) $g \circ g(x)$= _____, its domain is (_____, _____)

Answer(s) submitted:

- 1/(8(x+1))
- -1
- (8/x) + 8
- 0
- x
- 0
- 8(8x + 9)
- -infinity
- infinity

(correct)
Correct Answers:

- 1/(8*x + 8)
- -1
- 8/x+8
- 0
- x
- 0
- 8*(8*x + 8)+8
- -INFINITY
- INFINITY

8. (1 pt) Express the function $h(x) = (x+9)^3$ in the form $f \circ g$. If $f(x) = x^3$, find the function $g(x)$.
Your answer is $g(x)$= _____,

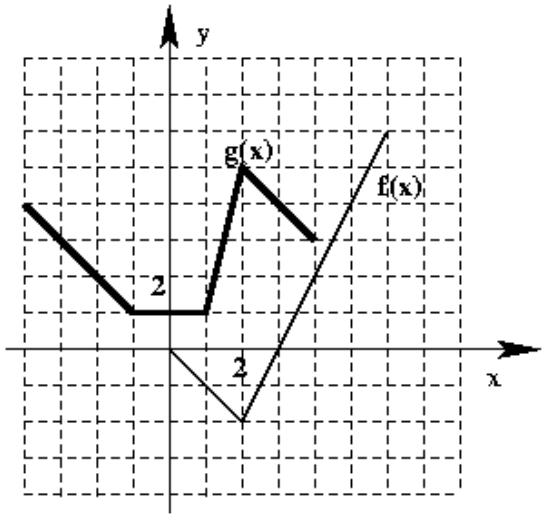
Answer(s) submitted:

- x + 9

(correct)
Correct Answers:

- x + 9

9. (1 pt) **Click on the graph to view a larger graph**
For the function $f(x)$ and $g(x)$ are given in the following graph.



Find the corresponding function values.

___1. $f(g(-2))$
___2. $f(g(3))$

Answer(s) submitted:

- -2
- 2

(correct)
Correct Answers:

- -2
- 2