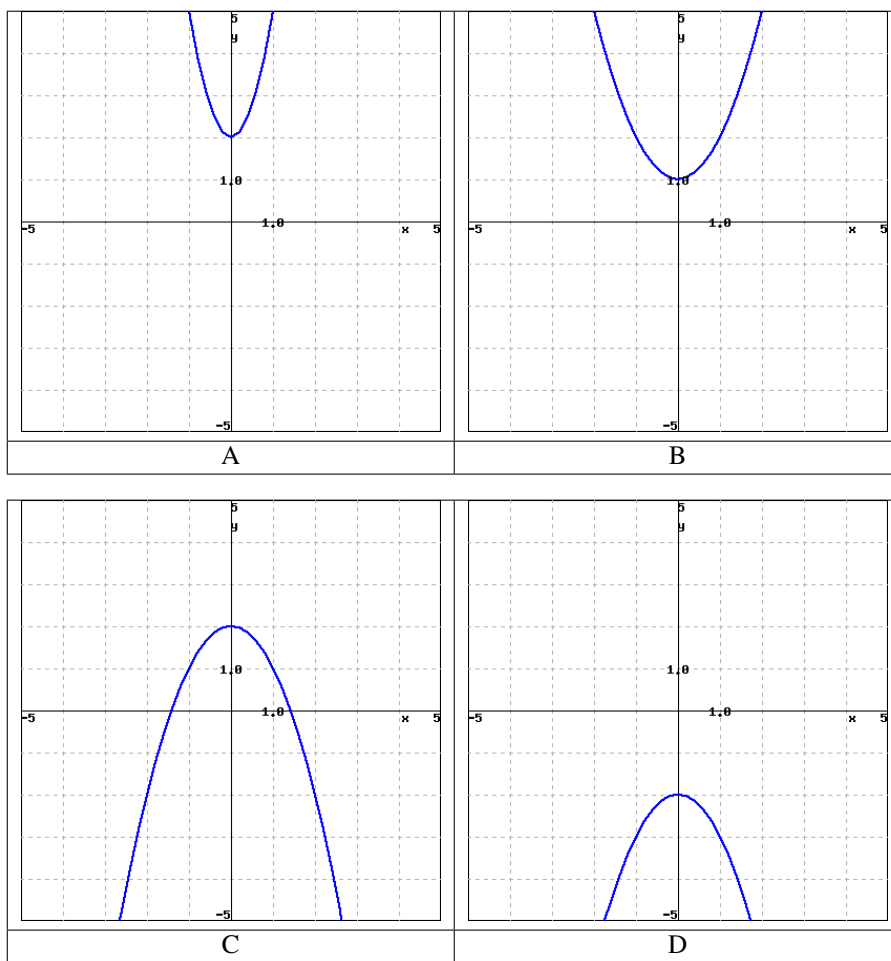


1. (1 point)

Use properties of functions to match each of the following functions with its graph. *Do not use your calculator.* Clicking on a graph will give you an enlarged view.

- ☐ 1. $f(x) = x^2 + 1$
- ☐ 2. $f(x) = -x^2 + 2$
- ☐ 3. $f(x) = 3x^2 + 2$
- ☐ 4. $f(x) = -x^2 - 2$



Answer(s) submitted:

-
-
-
-

(incorrect)

2. (1 point)

Let $f(x) = \frac{x+3}{x^2+2x+1}$. Use interval notation to indicate the domain of $f(x)$.

Note: You should enter your answer in interval notation. If the set is empty, enter "" without the quotation marks.

Domain = _____

Answer(s) submitted:

-

(incorrect)

3. (1 point) Let

$$f(x) = \sqrt[4]{x^2 - 8x}.$$

Use interval notation to indicate the domain of $f(x)$.

Note: When entering interval notation in WeBWorK, use **I** for ∞ , **-I** for $-\infty$, and **U** for the union symbol. If the set is empty, enter "" without the quotation marks.

Domain = _____

Answer(s) submitted:

•

(incorrect)

4. (1 point) An open rectangular box (no top) with volume 9 cubic meters has a square base. Express the surface area S of the box as a function of the length x of one of the sides of the base.

$S(x) =$ _____

Answer(s) submitted:

•

(incorrect)

5. (1 point)

Relative to the graph of

$$y = x^3$$

the graphs of the following equations have been changed in what way?

☐ 1. $y = (x)^3/3^3$

☐ 2. $y = (x+3)^3$

☐ 3. $y = x^3 + 3$

☐ 4. $y = 3^3 x^3$

- A. shifted 3 units down
- B. shifted 3 units up
- C. shifted 3 units left
- D. shifted 3 units right
- E. compressed horizontally by the factor 3
- F. stretched horizontally by the factor 3
- G. compressed vertically by the factor 3
- H. stretched vertically by the factor 3

Answer(s) submitted:

•

•

•

•

(incorrect)

6. (1 point) Suppose that

$$f(x) = \sqrt{7x}, \quad g(x) = \frac{x}{x-1}, \quad \text{and} \quad h(x) = \sqrt[3]{12x}.$$

Find $(f \circ g \circ h)(x)$.

$(f \circ g \circ h)(x) =$ _____

Answer(s) submitted:

•

(incorrect)

7. (1 point) Suppose that

$$f(x) = \sqrt{2x-3} \quad \text{and} \quad g(x) = 6x^2 - 4.$$

For each function h given below, find a formula for $h(x)$ and the domain of h . Enter the domains using **interval notation**.

(A) $h(x) = (f \circ g)(x)$.

$h(x) =$ _____

Domain = _____

(B) $h(x) = (g \circ f)(x)$.

$h(x) =$ _____

Domain = _____

(C) $h(x) = (f \circ f)(x)$.

$h(x) =$ _____

Domain = _____

(D) $h(x) = (g \circ g)(x)$.

$h(x) =$ _____

Domain = _____

Answer(s) submitted:

•

•

•

•

•

•

•

•

(incorrect)

8. (1 point) If $\cos(t) = -\frac{3}{4}$ where $\pi < t < \frac{3\pi}{2}$, find the values of the following trigonometric functions.

Note: Give exact answers, do not use decimal numbers. The answer should be a fraction or an arithmetic expression. If the answer involves a square root it should be entered as sqrt; e.g. the square root of 2 should be written as sqrt(2).

$$\cos(2t) = \underline{\hspace{2cm}}$$

$$\sin(2t) = \underline{\hspace{2cm}}$$

$$\cos\left(\frac{t}{2}\right) = \underline{\hspace{2cm}}$$

$$\sin\left(\frac{t}{2}\right) = \underline{\hspace{2cm}}$$

Answer(s) submitted:

-
-
-
-

(incorrect)

9. (1 point) Use a sum or difference formula or a half angle formula to determine the value of the trigonometric functions. Give exact answers. Do not use decimal numbers. The answer should be a fraction or an arithmetic expression. If the answer involves a square root it should be enter as sqrt; e.g. the square root of 2 should be written as sqrt(2);

$$\sin\left(\frac{11\pi}{8}\right) = \underline{\hspace{2cm}}$$

$$\sin\left(\frac{5\pi}{12}\right) = \underline{\hspace{2cm}}$$

$$\cos\left(\frac{5\pi}{12}\right) = \underline{\hspace{2cm}}$$

$$\cos\left(-\frac{7\pi}{12}\right) = \underline{\hspace{2cm}}$$

Answer(s) submitted:

-
-
-
-

(incorrect)

10. (1 point) The expressions A,B,C,D, E are left hand sides of identities. The expressions 1,2,3,4,5 are right hand side of identities. Match each of the left hand sides below with the appropriate right hand side. Enter the appropriate letter (A,B,C,D, or E) in each blank.

A. $\tan(x)$

B. $\cos(x)$

C. $\sec(x) \csc(x)$

D. $\frac{1 - (\cos(x))^2}{\cos(x)}$

E. $2 \sec(x)$

___1. $\tan(x) + \cot(x)$

___2. $\sec(x) - \sec(x)(\sin(x))^2$

___3. $\sin(x) \sec(x)$

___4. $\sin(x) \tan(x)$

___5. $\frac{\cos(x)}{1 - \sin(x)} + \frac{1 - \sin(x)}{\cos(x)}$

Answer(s) submitted:

-
-
-
-

(incorrect)