**1.** **(1 point)** set106_CRA/badalgebra

Is the following statement true or false?

$$\frac{x^3(c+d)}{x^2} = \frac{x^{cancel31}(c+d)}{cancelx^2} = x(c+d)$$

- A. True
- B. False

*Answer(s) submitted:*

- A

(correct)

**2.** **(1 point)** set106_CRA/parallelperpendicular

Find the equation for the line passing through the point $(-4,-1)$ and parallel to the line whose equation is $5y-10=15x$.

$y =$ _____

*Answer(s) submitted:*

- 3(x+4)-1

(correct)

**3.** **(1 point)** set106_CRA/addingalgebraicfractions

Perform the indicated operations on the three expressions

$$x + \frac{6}{x^2-36} - \frac{x^2}{x+6}.$$

Express your answer in simplest form $\frac{A}{B}$.

Answer: $A =$ _____ and $B =$ _____

*Answer(s) submitted:*

- 6x-30
- x^2-36

(incorrect)

**4.** **(1 point)** set106_CRA/exponents

The expression $\left(\frac{x^3y^3z^2x^{-5}}{x^2y^4z^5y^5}\right)^{-3}$ equals $x^ry^sz^t$

where $r$, the exponent of $x$, is: _____

and $s$, the exponent of $y$, is: _____

and finally $t$, the exponent of $z$, is: _____

**Note: Your answers should be numbers.**

*Answer(s) submitted:*

- 12
- 18
- 9

(correct)

**5.** **(1 point)** set106_CRA/inequality

The interval described in set notation by the inequality $|4x+0| < 16$ has interval notation:

_____

*Answer(s) submitted:*

- (-4,4)

(correct)

**6.** **(1 point)** set106_CRA/polynomial

Given that $f(x)$ is a degree 3 polynomial with zeros at $-7$, 0, and 10, find an equation for $f(x)$ given that $f(-2) = 4$.

$f(x) =$ _____

**Note: You may insert your answer in factored form or standard form.**

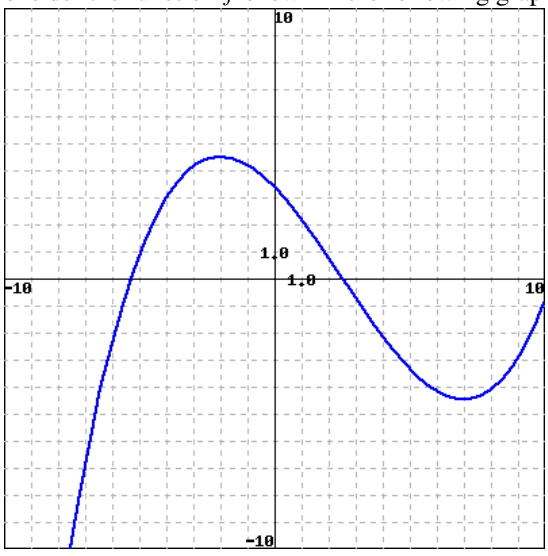
*Answer(s) submitted:*

- (x-10)x(x+7)/30

(correct)

**7.** **(1 point)** set106_CRA/increasing

Consider the function $f$ shown in the following graph.




(Click graph to enlarge)

Select **all answers** that are intervals on which $f$ is increasing.

- A. $(-2,\infty)$
- B. $(-\infty,0)\cup(9,\infty)$
- C. $(-2,7)$
- D. $(-\infty,-2)$

- E. $(7,\infty)$
- F. $(-\infty,-2)\cup(7,\infty)$
- G. $(-\infty,7)$

*Answer(s) submitted:*

- ( D, E, F )

(correct)

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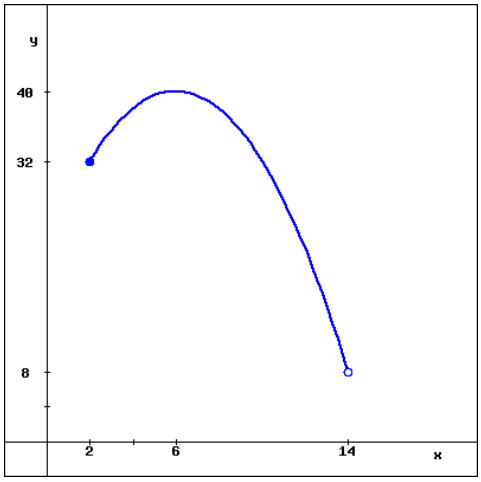
**8.** **(1 point)** set106_CRA/domainrange

Estimate the domain and range of the function $y=f(x)$ graphed in the figure. Assume the entire graph is shown.

(a) What is the domain of $f(x)$? _____ help (intervals)

(b) What is the range of $f(x)$? _____ help (intervals)




(Click graph to enlarge)

*Answer(s) submitted:*

- [2,14)
- (8,40]

(correct)

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**9.** **(1 point)** set106_CRA/piecewisecomposition

Let $f(x)$ and $g(x)$ be the piecewise defined functions given below.

$$f(x)=\begin{cases} x^2, & \text{if } x\le 0,\\ x^2+8, & \text{if } 0<x<5,\\ -6, & \text{if } x\ge 5.\end{cases} \qquad g(x)=\begin{cases} 9x-2, & \text{if } x\le 0,\\ 5x^3, & \text{if } 0<x<6,\\ -4x+5, & \text{if } x\ge 6.\end{cases}$$

$f(g(11)) =$ _____

*Answer(s) submitted:*

- -6

(correct)

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**10.** **(1 point)** set106_CRA/differencequotient

Let $f(x)=-x^2+7x+2$. When evaluated and simplified,

$$\frac{f(x+h)-f(x)}{h}=Ax+Bh+C,$$

where the constants

$A=$_____

$B=$_____

$C=$_____.

*Answer(s) submitted:*

- -2
- -1
- 7

(correct)

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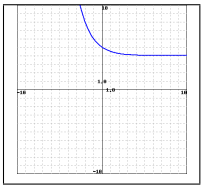
**11.** **(1 point)** set106_CRA/exponentialgraph



*(Click graph to enlarge)*

Which of the following could be an equation for the graph shown above?

- A. $2^x+5$
- B. $2^x+4$
- C. $\left(\frac{1}{2}\right)^x+5$
- D. $\left(\frac{1}{2}\right)^x+4$

*Answer(s) submitted:*

- D

(correct)

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**12.** **(1 point)** set106_CRA/logrules

Using properties of logarithms,

$$3\log x-3\log(x^2+1)+3\log(x-1)=\log(A)$$

for some expression

$A=$ _____

**Note: "log" is not part of your answer.**

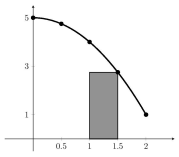
*Answer(s) submitted:*

- x^3(x-1)^3/(x^2+1)^3

(correct)

**13.** **(1 point)** set106_CRA/geometryproblems

A portion of the graph $f(x) = 5 - x^2$ is shown below. The area of the shaded rectangle is _____.




*Answer(s) submitted:*

- 11/8

(correct)

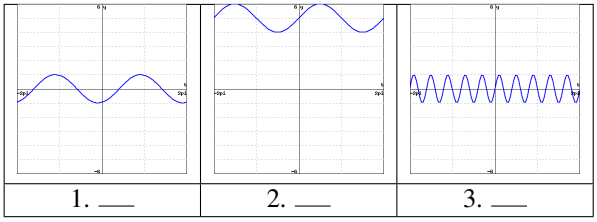
**14.** **(1 point)** set106_CRA/triggraphs

Match each of the equations below to one of the graphs by placing the corresponding letter of the equation under the appropriate graph.

A. $y = \sin(t+5)$

B. $y = \sin(t)+5$

C. $y = \sin(5t)$




*(Click an individual graph to enlarge)*

*Answer(s) submitted:*

- A
- B
- C

(correct)

**15.** **(1 point)** set106_CRA/triangletrig

Evaluate the following expression.

$\tan(\sin^{-1}(\frac{3}{5}))$ _____

*Answer(s) submitted:*

- 3/4

(correct)