ID: 91e7ea5e

$h(x) = 2(x-4)^2 - 32$

Advanced Math H ~ #1

The quadratic function *h* is defined as shown. In the *xy*-plane, the graph of $y = h(x)$ intersects the *x*-axis at the points $(0,0)$ and $(t,0)$, where *t* is a constant.

What is the value of *t* ?

A. 1

B. 2

C. 4

D. 8

$$2|4-x|+3|4-x|=25$$

What is the positive solution to the given equation?

ID: 8490cc45

Advanced Math H ~ #3

The function f is defined by $f(x) = (-8)(2)^x + 22$. What is the *y*-intercept of the graph of $y = f(x)$ in the *xy*-plane?

A. $(0, 14)$

B. $(0, 2)$

C. $(0, 22)$

D. $(0, -8)$

$$x^2 - 2x - 9 = 0$$

One solution to the given equation can be written as $1 + \sqrt{k}$, where k is a constant. What is the value of k?

A. 8

B. 10

C. 20

D. 40

ID: 2c6f214f

Advanced Math H ~ #5

The first term of a sequence is 9. Each term after the first is 4 times the preceding term. If w represents the nth term of the sequence, which equation gives w in terms of n?

A. $w = 4(9^n)$

B. $w = 4(9^{n-1})$

C. $w = 9(4^n)$

D. $w = 9(4^{n-1})$

$x - y = 1$

$x + y = x^2 - 3$

Which ordered pair is a solution to the system of equations above?

A. $(1+\sqrt{3}, \sqrt{3})$

B. $(\sqrt{3}, -\sqrt{3})$

C. $(1+\sqrt{5}, \sqrt{5})$

D. $(\sqrt{5}, -1+\sqrt{5})$

ID: c3b116d7

Advanced Math H ~ #7

Which of the following expressions is(are) a factor of $3x^2 + 20x - 63$?

I. $x - 9$

II. $3x - 7$

A. I only

B. II only

C. I and II

D. Neither I nor II

If $\frac{\sqrt{x^5}}{\sqrt[3]{x^4}} = x^{\frac{a}{b}}$ for all positive values of x, what is the value of $\frac{a}{b}$?

ID: b8f13a3a

Advanced Math H ~ #9

Function f is defined by $f(x) = -a^x + b$, where a and b are constants. In the *xy*-plane, the graph of $y = f(x) - 12$ has a *y*-intercept at $\left(0, -\frac{75}{7}\right)$. The product of a and b is $\frac{320}{7}$. What is the value of a?

ID: 4a0d0399

Advanced Math H ~ #10

The function f is defined by $f(x) = a^x + b$, where a and b are constants. In the xy-plane, the graph of $y = f(x)$ has an x-intercept at $(2, 0)$ and a y-intercept at $(0, -323)$. What is the value of b?