Do Now

1. Find the value of x for the function f(x) = 5x - 4,

if f(x) = 11

$11 = 5x - 4$

$15 = 5x$

$3 = x$

$(3, 11)$

2. Simplify the expression: (x+3) - (2x + 1)

$x + 3 - 2x - 1$

$-x + 2$

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Homework Answers

1 a. 3

b. -5

c. -1

2.a. $\frac{1}{4}$

b. 0

c. $\frac{-1}{4}$

3. a. $f(1) = 4$ $f(5) = -2$

$f(-3) = -4$ $f(0) = 2$

b. $f(x) = 0$ $f(x) = 2$

$x = -1 \& 4$ $x = 0 \& 3$

c. Largest output = 4

when x = 1

Nov 28-12:58 PM

Operations with Functions

Just as you can perform operations with numbers, you can perform operations with functions. Add, Sub, Multi, Divide, Square, Square Roots

EX: Given $f(x) = 3x - 1$ and $g(x) = -2x + 2$, find $h(x) = f(x) + g(x)$.

$h(x) = f(x) + g(x)$	Write the general form of h(x)
$h(x) = (3x - 1) + (-2x + 2)$	Substitute the rules for f(x) and g(x
$h(x) = 3x - 2x - 1 + 2$	Combine like terms
$h(x) = x + 1$	Simplify

Dec 12-9:44 AM

1. Given $f(x) = 3x - 5$ and $g(x) = 5x - 1$, find $h(x) = f(x) - g(x)$.

$h(x) = f(x) - g(x)$
$h(x) = (3x - 5) - (5x - 1)$
$h(x) = 3x - 5 - 5x + 1$
$h(x) = -2x - 4$

2. Given $f(x) = 5$ and $g(x) = -\frac{1}{5}x - 2$, find $h(x) = f(x) \cdot g(x)$.

$h(x) = f(x)(g(x))$
$h(x) = 5(-\frac{1}{5}x - 2)$
$h(x) = -x - 10$

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3. Given f(x) = x + 2 find h(x) = [f(x)]^2.

$h(x) = [f(x)]^2$

$h(x) = (x+2)^2$

$h(x) = (x+2)(x+2)$

	x	$+2$
x	x^2	$2x$
$+2$	$2x$	$+4$

$h(x) = x^2 + 2x + 2x + 4$

$h(x) = x^2 + 4x + 4$

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4. Given f(x) = 3, g(x) = x + 2, and h(x) = x, find k(x) = f(x) • [g(x) + h(x)].

$k(x) = f(x)(g(x) + h(x))$

$k(x) = 3((x+2) + (x))$

$k(x) = 3(2x + 2)$

$k(x) = 6x + 6$

Dec 12-10:03 AM

5. Over time, the enrollment at one high school in a city can be modeled by f(t) = 32t + 1255. The enrollment at the city's other high school can be modeled by g(t) = 27t + 1380. Write a rule for the total enrollment as a function of time.

$h(t) = f(t) + g(t)$

$h(t) = (32t + 1255) + (27t + 1380)$

$h(t) = 59t + 2635$

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6. For the initial year of soccer camp, 44 girls and 56 boys enrolled. Each year thereafter, 5 more girls and 8 more boys enrolled in the camp. Let t be the time (in years) since the camp opened. Write a rule for each of the following functions:

- g(t), the number of girls enrolled as a function of time t

$g(t) = 44 + 5t$

- b(t), the number of boys enrolled as a function of time t

$b(t) = 56 + 8t$

- T(t), the total enrollment as a function of time t

$T(t) = g(t) + b(t)$

$T(t) = (44 + 5t) + (56 + 8t)$

$T(t) = 13t + 100$

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7. For the soccer camp in the previous example, the cost per child each year was $200. Let t be the time (in years) since the camp opened. Write a rule for each of the following functions:

- C(t), the cost per child of the camp as a function of t

$C(t) = 200$

- R(t), the revenue generated by the total enrollment as a function of t

$R(t) = C(t)(T(t))$

$R(t) = 200(13t + 100)$

$R(t) = 2600t + 20000$

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Operations with Functions

Homework

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