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Function Operations

$$P(x) = 100x - 1000$$

(1) **Decide what the correct rules are for combining functions.**

(2) Determine the total cost of the sand-proof glass carpet dome.

(3) Establish the equation to calculate Jaanav total profit.

(4) Examine the total cost of the production with Janaav's brother's new glass dome machine.

(5) Figure out the price for one dome.

(6) Calculate each operation with the given functions.

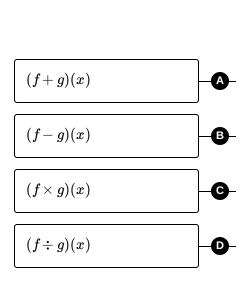(+) with lots of tips, answer keys, and detailed answer explanations for all of the problems.
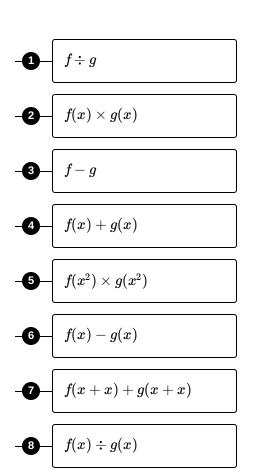
⚠ The complete package, **including all problems, hints, answers, and detailed answer explanations** is available for all sofatutor.com subscribers.

Decide what the correct rules are for combining functions.

Match the elements.

1	$f \div g$
2	$f(x) \times g(x)$
3	$f - g$
4	$f(x) + g(x)$
5	$f(x^2) \times g(x^2)$
6	$f(x) - g(x)$
7	$f(x + x) + g(x + x)$
8	$f(x) \div g(x)$

$(f + g)(x)$ **A**

$(f - g)(x)$ **B**

$(f \times g)(x)$ **C**

$(f \div g)(x)$ **D**

Hints for solving these problems

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Decide what the correct rules are for combining functions.

Hint #1

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

An example of addition with $f(x) = 2x + 1$ and $g(x) = 3x - 2$:

Hint #2

$$(f \div g)(x) = \frac{2x+1}{3x-2}$$

An example for division with $f(x) = 2x + 1$ and $g(x) = 3x - 2$:

Hint #3

$$(f \times g)(x) = (2x + 1) \times (3x - 2)$$

An example for multiplication with $f(x) = 2x + 1$ and $g(x) = 3x - 2$:

Answers and detailed answer explanations for these problems

Decide what the correct rules are for combining functions.

Answer key: A—4 // B—6 // C—2 // D—8

How can we add, subtract, multiply, or divide two functions?
- $(f + g)(x) = f(x) + g(x)$
- $(f - g)(x) = f(x) - g(x)$
- $(f \times g)(x) = f(x) \times g(x)$
- $(f \div g)(x) = f(x) \div g(x)$

i.e. we add, subtract, multiply or divide the corresponding terms of the functions.

For example, with $f(x) = 2x + 1$ and $g(x) = 3x - 2$:

$$(f - g)(x) = f(x) - g(x) = 2x + 1 - (3x - 2) = 2x + 1 - 3x + 2 = -x + 3.$$