

21. Solve for  $x$ . Show all work.

$$2^{\frac{x}{2}} = 8\sqrt{2}$$

$x =$  \_\_\_\_\_

22. Ava paid for a year of college by using a combination of one government loan and one bank loan. For both loans, the amount Ava will have to pay depends on the number of years she plans to take to pay it back. The amount she owes to the government is modeled by the function  $g(t) = 10,000 + 10,000(0.025)(t)$ . The amount she owes to the bank is modeled by the function  $b(t) = 4,000 + 4,000(0.07)(t)$ . For both functions,  $t$  is the number of years she plans to take to repay the loan.

Combine functions  $g(t)$  and  $b(t)$  to build a new function,  $c(t)$ , to model the total amount Ava must repay in loans if she plans to repay them in  $t$  years. Use  $g(t)$  and  $b(t)$  in your answer.

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