

- 17.** A school is raising money for new desks. They have collected \$400 in donations, and are hosting a dinner, which costs \$10 to attend. Every person at the dinner buys a \$2 raffle ticket, and the winner of the raffle gets \$500.

**a.** Write a rule for the function  $R(t)$ , the profit the school makes on the raffle.

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**b.** Write a rule for the function  $D(t)$ , the earnings made from the donations and dinner.

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**c.** Describe how the function  $T(t)$ , the total amount of money raised by the school for new desks, is related to  $R(t)$  and  $D(t)$ . Then, write a rule for  $T(t)$ .

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- 18.** A birthday party is being planned for 20 people at an arcade. It costs \$5 a person to provide food for everyone, and each game costs \$1 per play. Assume that each person at the party plays the same number of games,  $x$ .

**a.** Write a rule for the function  $C(x)$ , the total cost per person.

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**b.** Write a rule for the function  $n(x)$ , the number of people who attend.

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**c.** Describe how the function  $T(x)$ , the total cost of the party, can be obtained from the functions  $C(x)$  and  $n(x)$ . Then, write a rule for  $T(x)$ .

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- 20.** A police department issues speeding tickets for \$50 plus an additional dollar for each mile per hour over the speed limit the driver was going. Half of the money from speeding tickets goes toward buying new equipment for the police officers. Write a rule for the function  $E(x)$ , the amount of money for new equipment generated by a ticket for driving  $x$  miles per hour over the speed limit.
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- 21.** Use the information in the table below to answer the following questions.

$x$	$f(x)$	$g(x)$
0	3	-2
2	-1	4
5	-7	13

**a.** Use the table to write rules for the functions  $f(x)$  and  $g(x)$ .

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**b.** Find the sum  $h(x) = f(x) + g(x)$  and the difference  $j(x) = f(x) - g(x)$ .

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