Linear function word problems

In a political science class, test scores were determined to be 20 times the number of hours, h, the student studied plus 3. Which of the following functions best describes a student's test score depending on the number of hours, h, that the student studied?

A $f(h) = 3h + 20$

B $f(h) = 20h$

C $f(h) = 60h$

D $f(h) = 20h + 3$

A 300-room hotel collects $\$75$ per occupied room and does not collect any money for vacant rooms. Which of the following functions best represents how many dollars, d, the hotel generates if there are v vacant rooms in the hotel?

A $d = 75(300 - v)$

B $d = 75(300 + v)$

C $d = 300(75 - v)$

D $d = 300(75 + v)$

Vendors at a craft fair pay $\$45$ to rent a table for the day. Benjamin rents a table at the craft fair and sells 8 ounce jars of jam for $\$7.95$ per jar. If it costs Benjamin $\$2.75$ to make each container of jam, which of the following equations best models his profit, p, from one day at the craft fair if he sells n jars of jam?

A $p = 5.20n$

B $p = 7.95n$

C $p = 5.20n - 45$

D $p = 7.95n - 45$

Linear function word problems

John manufactures household furniture. His start-up costs, including tools, plans, and advertising, total $\$5000$. Labor and materials for each piece of furniture total $\$350$, and his production costs are the sum of his start-up costs plus the cost of labor and materials. If John makes f pieces of furniture, what will be his production costs, c, in dollars?

(A) $f = 350c + 5000$

(B) $c = 350f + 5000$

(C) $f = 5000c + 350$

(D) $c = 5000f + 350$

The number of problems assigned as homework by a savvy math professor is a function of the length of the class on a particular day, which is either 45 minutes, 90 minutes, or 135 minutes. He first multiplies the number of minutes by 4 and then divides that number by 9. Finally, he subtracts 12 from that amount. Which of the following functions best represents the number of math problems the professor assigns depending on the length of the class, t, in minutes?

(A) $f(t) = \frac{4}{9}t - 12$

(B) $f(t) = \frac{4}{9}(t - 12)$

(C) $f(t) = 12 - \frac{4}{9}t$

(D) $f(t) = 12 + \frac{4}{9}t$