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> **Directions:** Please choose the best answer choice for each of the following questions.

1. The formula $D = \dfrac{m}{V}$ is used to calculate the density, $D$, of an object with mass, $m$, and volume, $V$. If an object has the same mass but half the volume, what is the effect on the density?

   A. The density is increased by $2$.

   B. The density is divided by $2$.

   C. The density is the same.

   D. The density is doubled.

2. The pressure and volume of a certain gas are related by the equation $pv = 24$, where $p =$ pressure in pascals and $v =$ volume in cubic meters. If the value of $p$ is doubled, what happens to the value of $v$?

   A. It is multiplied by 4.

   B. It is multiplied by 2.

   C. It is divided by 4.

   D. It is divided by 2.

3. Which of the following shows the equation below correctly solved for *x*?
   8*x* = 5*x* + 3*y* + *z*

   A. x = y + z

   B. x = 3y + z

   C. x = (y/3) + (z/3)

   D. x = y + (z/3)

4. Which equation could be used to convert the number of quarters, $q$, to the number of dollars, $d$?

   A. $d = 25q$

   B. $d = 4q$

   C. $d = 0.25q$

   D. $d = \dfrac{1}{25}q$

5. Which correctly solves the following equation for the variable 'd' ?
   r=d/t

   A. d=r/t

   B. d=r*t

   C. d=t/r

   D. r=d*t

6. Karen wants Gustavo's Restaurant to cater her next party. She plans to invite more than $50$ people. Gustavo's charges $12 for each of the first 50 people and $9 for each additional person. Gustavo's also charges a fixed setup and cleaning fee of $125. If *x* represents the number of people attending Karen's party, which expression can be used to determine Karen's catering cost?

   A. $\$125 + \$12(50) + \$9(x - 50)$

   B. $\$125 + \$12(50) - \$9(x + 50)$

   C. $\$125 + \$12(50) + \$9(50 - x)$

   D. $\$125 + \$12(50) - \$9(x - 50)$

7. Max's grandmother gives him $\$12$ per hour to mow her lawn. On the way home, he always buys a can of soda for $\$1.25$ and pays for his bus fare, which is $\$1.75$. If he deducts these two expenses from his earnings, which equation shows the relationship between his earnings, $d$, and the number of hours, $h$, he works mowing the lawn?

   A. $d = 3h$

   B. $d = 12h$

   C. $d = 3h + 12$

   D. $d = 12h - 3$

8. The Ruiz family is budgeting to buy a new house. With their current income, they can pay from $\$825$ to $\$975$ per month. If $x$ represents the monthly payment, which inequality below shows this relationship?

   A. $\$825 < x < \$975$

   B. $\$825 > x > \$975$

   C. $\$825 \le x \le \$975$

   D. $\$825 \ge x \ge \$975$

9. Jorge is five times his daughter's age, $x$, less ten. If Jorge is thirty years old, how old is his daughter?

   A. 4

   B. 6

   C. 8

   D. 16

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10. A local cell phone company charges a rate of $5.00 per month for up to 250 text messages. There is a 20-cent charge per message for any sent or received over 250 in one month. What would be the total monthly charge for sending or receiving 341 text messages?

   A. $6.82

   B. $18.20

   C. $23.20

   D. $73.20

**Stop! You have finished this exam.**