04-09 Sample Quiz - Rational Equations in Context

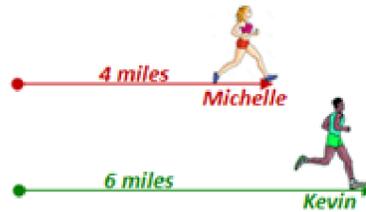**Multiple Choice**
Identify the choice that best completes the statement or answers the question.

____ 1.

Kevin ran 6 miles in the time it took
Michelle to run 4 miles.

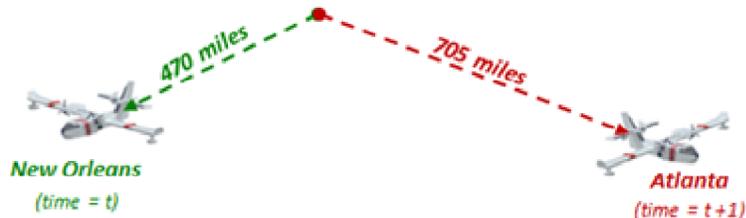Kevin runs at a rate of $3 \frac{miles}{hour}$ faster than
Michelle.

How fast was **Michelle** running?

a.   4 miles per hour   c.   6 miles per hour
b.   5 miles per hour   d.   9 miles per hour

____ 2.

Starting from the same place
a plane took 1 hr longer to fly
705 mi to Atlanta, than to fly
470 mi to New Orleans.

If the plane flew at the same
rate for the entire trip, what
was the flying time for the
shorter leg?

a. $\frac{1}{2}$ hr   c. $1\frac{1}{2}$ hrs
b.   1hr   d.   2 hrs

____ 3.   A wedding planner is preparing a wedding reception dinner and has determined that the overall cost will require
$25 for each guest that attends. This situation can be represented by $c(x) = 25x$, where x is the independent
variable and represents the number of guest and $c(x)$ is the dependent variable and represents the cost of the
reception.

Which best describes the appropriate **DOMAIN** of this situational function?

a.   The set of **Integers** (i.e. {..... –2, –1, 0, 1, 2, ...})
b.   The set of **Whole Numbers** (i.e. { 0, 1, 2, 3, ...})
c.   The set of **All Real Numbers** $\{\mathbb{R}\}$ where $x \leq 0$
d.   The set of **All Real Numbers** $\{\mathbb{R}\}$ where $x \geq 0$

____ 4.

A balloon's volume increases from 8 liters to 8.5 liters during which time the temperature increased 18° Kelvin. Using Charles' Law, determine the original temperature of the room in Kelvin.

Charles Law: $\dfrac{V_1}{T_1} = \dfrac{V_2}{T_2}$

Given we know:
$V_1 = 8,\quad V_2 = 8.5,\quad T_1 = x,\quad T_2 = x + 18$

a. $x = 18°K$ c. $x = 273°K$
b. $x = 68°K$ d. $x = 288°K$

____ 5. The equation for compound interest is $A = P\left(1 + \dfrac{r}{n}\right)^{nt}$ where **P** is the initial amount invested, **r** is the interest rate as a decimal, **n** is the number of times compounded annually, and **t** is the number of years.

Which function below **best** represents how the change in the number of compounds per year (**n**) increases the value of the account after investing $25 at 12% interest for **25** years.

a.

b.

c.

d.