Algebra Quick Quiz 02152024

Question 1.

The function $h(t) = -16t^2 + 48t + 160$ can be used to model the height, in feet, of an object t seconds after it is launched from the top of a building that is 160 feet tall.

Two other forms of the function are:

$h(t) = -16(t-5)(t+2)$

$h(t) = -16(t-1.5)^2 + 196$

Which value of the function represents the maximum height of the object?

- A. $h(0)$
- B. $h(1.5)$
- C. $h(2)$
- D. $h(5)$

Question 2

The formula for the resistance of a conductor with voltage V and current I is $r = \frac{V}{I}$. Solve for V.

a. $I = Vr$

b. $V = \frac{I}{r}$

c. $V = Ir$

d. $V = \frac{r}{I}$

Question 3.

Which system has no solution?

a. $\begin{cases} y = x + 4 \\ y - x = -4 \end{cases}$

b. $\begin{cases} 2y = 2x + 8 \\ -2x = 2y - 8 \end{cases}$

c. $\begin{cases} y = \frac{1}{2}x + 6 \\ 2x + 5 = y \end{cases}$

d. $\begin{cases} y = 4x + 1 \\ y - 1 = 4x \end{cases}$

Question 4.

A sales clerk earns a 3% commission on each sale. What is the commission earned on a sale of $4450?

a. $133.50
b. $148.33
c. $1335.00
d. $13.35

Question 5.

Given $f(x) = x^2 + 1$ with domain D: $\{-2, -1, 0, 1, 3\}$. What is the range, R?

a. R: $\{-1, -2, 0, 1, 3\}$
b. R: $\{4, 1, 0, 1, 9\}$
c. R: $\{5, 2, 1, 2, 10\}$
d. R: $\{3, 0, -1, 0, 8\}$

Question 6.

Solve $y + w - \frac{3}{4}z = 0$ for z.

a. $z = \frac{4}{3}(y + w)$
b. $z = \frac{3}{4}(y + w)$
c. $z = \frac{4}{3}w + y$
d. $z = \frac{4y}{3} + w$

Question 7.

Gloria earns 1.5 times her normal hourly pay for each hour that she works over 40 hours in a week. Her normal pay is p dollars per hour. Last week Gloria worked 47 hours and earned $489.85. The following equation represents this situation where p is Gloria's normal hourly pay in dollars per hour.

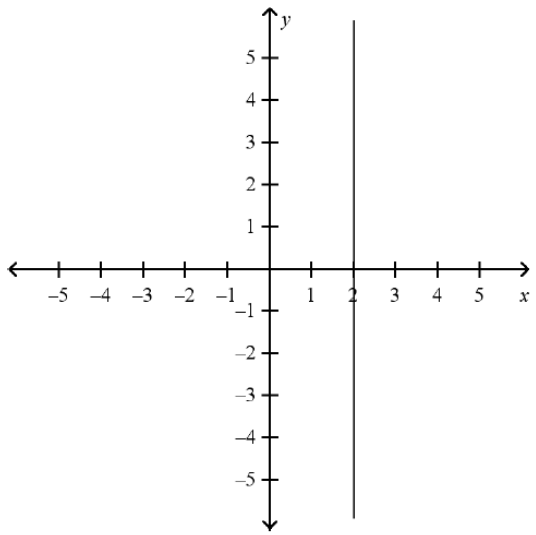
$$40p + 7(1.5p) = 489.85$$

What is Gloria's normal hourly pay?

a. $5.90
b. $6.95
c. $8.70
d. $9.70

Question 8.

Tell whether the slope of the line is positive, negative, zero, or undefined.



a. negative
b. positive
c. undefined
d. zero

Question 9.

Leah scored p points in the first half of the basketball game. In the second half, she scored 3 more than $\frac{1}{2}$ the number of points she scored in the first half of the game. Altogether, she scored 21 points in the game. The following equation represents this situation where p represents the number of points Leah scored in the first half.

$$p + \left(\frac{1}{2}p + 3\right) = 21$$

How many points did Leah score in the first half?

a. 6
b. 9
c. 12
d. 18

Question 10.

Subtract $(6a^2 + 3a) - (4a^2 + 2a)$.

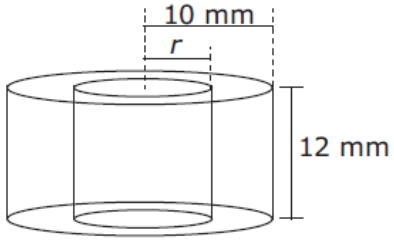
a. $2a^2 + a$
b. $2a^2 + 5a$
c. 3
d. $3a^3$

Bonus Question

Question 11

The volume of a cylinder $\mathbf{V = \pi r^2 h}$
Where **r** is the radius and **h** is the height of the cylinder.

The diagram shows two cylinders with bases that have the same center and heights of 12 millimeters.



34. Part A

Which is a function for the volume, V, that is inside the larger cylinder but outside the one with the smaller radius r?

Ⓐ $V(r) = 1{,}200\pi - 12\pi r^2$

Ⓑ $V(r) = 120\pi - 12\pi r^2$

Ⓒ $V(r) = 12\pi r^2$

Ⓓ $V(r) = 12\pi(10 - r)^2$

Part B

Suppose that there is space between the inner and outer cylinders and the radius of the inner cylinder must be an integer greater than or equal to 3. What is the domain of V?

Ⓐ all integers greater than or equal to 3

Ⓑ 3, 4, 5, 6, 7, 8, 9, or 10

Ⓒ 3, 4, 5, 6, 7, 8, or 9

Ⓓ $3 \leq m \leq 9$