PSSA and Keystone Exams
Summer 2023 Workshops

PSSA, Grade 8 Math

Justin Joins a Gym

Handscoring

Practice Set 1*

*Responses in this set do not have true scores. Apply scores based on scoring criteria.

51. Justin is joining a gym. The gym is currently offering a discount on the fee to join and on the monthly rate.

The discounted price, in dollars, the gym charges can be represented by the equation $y = 10x + 5$.

A. What are the slope and the y-intercept of the equation? What do the slope and the y-intercept each represent in this situation?

The y represents the amount of time (months) that has passed. The slope represents the relationship between the monthly rate and the fee to join.

The regular price, in dollars, the gym charges can be represented by the equation $y = 15x + 20$.

B. How much money, in dollars, does Justin save the first month by joining the gym at the discounted price rather than at the regular price?

	discount	regular	amount saved
1	\$15	\$35	\$20

Justin would save \$20 on the discount price.

51. ***Continued.*** Please refer to the previous page for task explanation.

Justin creates a system of equations based on the equation from **part A** and the equation from **part B**. The solution to the system of equations is (−3, −25).

C. Why is the point (−3, −25) **not** a possible solution in this situation?

(-3, -25) can not be a solution to this situation because the numbers are negative and Justin can not pay his gym a negative amount of money.

25. Justin is joining a gym. The gym is currently offering a discount on the fee to join and on the monthly rate.

The discounted price, in dollars, the gym charges can be represented by the equation $y = 10x + 5$.

A. What are the slope and the y-intercept of the equation? What do the slope and the y-intercept each represent in this situation?

Slope $= 10x$

y-intercept $= 10x+5$

They each represent the discounted Price.

The regular price, in dollars, the gym charges can be represented by the equation $y = 15x + 20$.

B. How much money, in dollars, does Justin save the first month by joining the gym at the discounted price rather than at the regular price?

He saves 15\$ rather then saving \$35

25. ***Continued.*** Please refer to the previous page for task explanation.

Justin creates a system of equations based on the equation from **part A** and the equation from **part B**. The solution to the system of equations is (−3, −25).

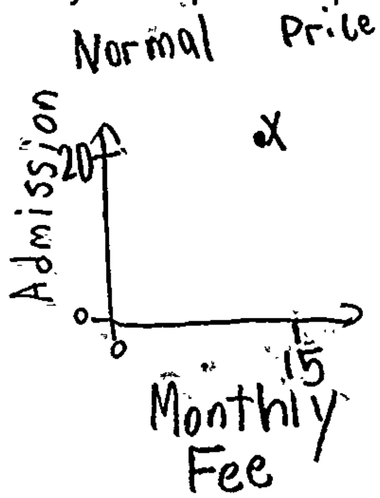
C. Why is the point (−3, −25) **not** a possible solution in this situation?

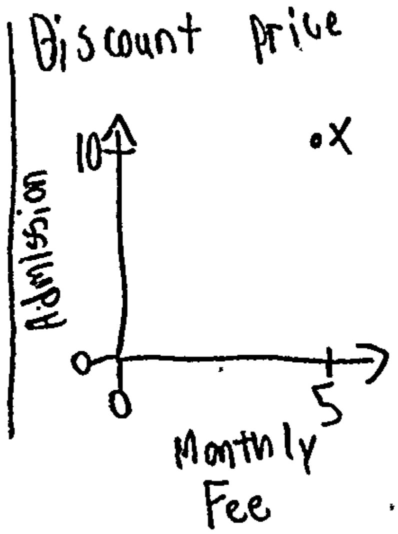
This point is not a possible solution because it is a negative point.

51. Justin is joining a gym. The gym is currently offering a discount on the fee to join and on the monthly rate.

The discounted price, in dollars, the gym charges can be represented by the equation $y = 10x + 5$.

A. What are the slope and the *y*-intercept of the equation? What do the slope and the *y*-intercept each represent in this situation?





The regular price, in dollars, the gym charges can be represented by the equation $y = 15x + 20$.

B. How much money, in dollars, does Justin save the first month by joining the gym at the discounted price rather than at the regular price?

$20.00

51. ***Continued.*** **Please refer to the previous page for task explanation.**

Justin creates a system of equations based on the equation from **part A** and the equation from **part B**. The solution to the system of equations is $(-3, -25)$.

C. Why is the point $(-3, -25)$ not a possible solution in this situation?

It's not possible because either he's going
to owe the gym money or the gym is
going to kick him out

51. Justin is joining a gym. The gym is currently offering a discount on the fee to join and on the monthly rate.

The discounted price, in dollars, the gym charges can be represented by the equation $y = 10x + 5$.

A. What are the slope and the *y*-intercept of the equation? What do the slope and the *y*-intercept each represent in this situation?

The slope in this equation is 10. The y-intercept of the equation is 5. The slope in this situation represent the monthly rate of the gym. The y-intercept is representing the discount on the fee.

The regular price, in dollars, the gym charges can be represented by the equation $y = 15x + 20$.

B. How much money, in dollars, does Justin save the first month by joining the gym at the discounted price rather than at the regular price?

The amount of money Justin save the first month by joining the gym is $5.

51. ***Continued.*** Please refer to the previous page for task explanation.

Justin creates a system of equations based on the equation from **part A** and the equation from **part B.** The solution to the system of equations is (−3, −25).

C. Why is the point (−3, −25) **not** a possible solution in this situation?

This point (-3, -25) is not a possible Solution in this situation because were talking about money and there is no way in money there can be negatives.

51. Justin is joining a gym. The gym is currently offering a discount on the fee to join and on the monthly rate.

The discounted price, in dollars, the gym charges can be represented by the equation $y = 10x + 5$.

A. What are the slope and the y-intercept of the equation? What do the slope and the y-intercept each represent in this situation?

The slope represents how much the gym charges. The y intercept represents the discount. The slope is 10x and the y-intercept is 5.

The regular price, in dollars, the gym charges can be represented by the equation $y = 15x + 20$.

B. How much money, in dollars, does Justin save the first month by joining the gym at the discounted price rather than at the regular price?

he saves $15 dollairs

51. ***Continued.*** Please refer to the previous page for task explanation.

Justin creates a system of equations based on the equation from **part A** and the equation from **part B**. The solution to the system of equations is (−3, −25).

C. Why is the point (−3, −25) **not** a possible solution in this situation?

point (-3,-25) is not a possiable solution because you can't divide them without haveing a remander.

51. Justin is joining a gym. The gym is currently offering a discount on the fee to join and on the monthly rate.

The discounted price, in dollars, the gym charges can be represented by the equation $y = 10x + 5$.

A. What are the slope and the y-intercept of the equation? What do the slope and the y-intercept each represent in this situation?

The slope is how much a month and the y-intercept is how much it all costs.

The regular price, in dollars, the gym charges can be represented by the equation $y = 15x + 20$.

B. How much money, in dollars, does Justin save the first month by joining the gym at the discounted price rather than at the regular price?

regular price = $35
discounted price = $15

Justin will save a whole $20.00 with the discounted price for that month.

51. ***Continued.*** **Please refer to the previous page for task explanation.**

Justin creates a system of equations based on the equation from **part A** and the equation from **part B**. The solution to the system of equations is (−3, −25).

C. Why is the point (−3, −25) **not** a possible solution in this situation?

This can not be a solution for the reasons, you can not be in a gym for -3 days and owe the gym $-25.

51. Justin is joining a gym. The gym is currently offering a discount on the fee to join and on the monthly rate.

The discounted price, in dollars, the gym charges can be represented by the equation $y = 10x + 5$.

A. What are the slope and the y-intercept of the equation? What do the slope and the y-intercept each represent in this situation?

Slope→10
y-intercept→5

*Slope shows that each month you will have to pay $10.

*Y-intercept shows that you just have to pay $5 for joining the gym. You also only pay this amount once, you pay slope ($10) every month.

The regular price, in dollars, the gym charges can be represented by the equation $y = 15x + 20$.

B. How much money, in dollars, does Justin save the first month by joining the gym at the discounted price rather than at the regular price?

Justin saves $20 by joining the gym at the discounted price.

51. ***Continued.*** Please refer to the previous page for task explanation.

Justin creates a system of equations based on the equation from **part A** and the equation from **part B**. The solution to the system of equations is (−3, −25).

C. Why is the point (−3, −25) **not** a possible solution in this situation?

$-25 = 10 \cdot -3 + 5$
$= -30 + 5$
$-25 = -25$

$-25 = 15 \cdot -3 + 20$
$-25 = -25$

The points (-3,-25) are not possibe because you can not go to the gym for negative months and you can not pay negative dollars for the gym.

25. Justin is joining a gym. The gym is currently offering a discount on the fee to join and on the monthly rate.

The discounted price, in dollars, the gym charges can be represented by the equation $y = 10x + 5$.

A. What are the slope and the y-intercept of the equation? What do the slope and the y-intercept each represent in this situation?

Slope: 10x
y-intercept: 5

Slope reprensents the monthly pay rate.
y-intercept reprensents the offered discount.

The regular price, in dollars, the gym charges can be represented by the equation $y = 15x + 20$.

B. How much money, in dollars, does Justin save the first month by joining the gym at the discounted price rather than at the regular price?

He can save 20$

25. ***Continued.*** Please refer to the previous page for task explanation.

Justin creates a system of equations based on the equation from **part A** and the equation from **part B**. The solution to the system of equations is (−3, −25).

C. Why is the point (−3, −25) **not** a possible solution in this situation?

cannot pay negative dollars
for this equation.

25. Justin is joining a gym. The gym is currently offering a discount on the fee to join and on the monthly rate.

The discounted price, in dollars, the gym charges can be represented by the equation $y = 10x + 5$.

A. What are the slope and the y-intercept of the equation? What do the slope and the y-intercept each represent in this situation?

The slope is 5 and the y-intercept is 12. The slope represents the monthly rate and the y-intercept represents the initial fee.

The regular price, in dollars, the gym charges can be represented by the equation $y = 15x + 20$.

B. How much money, in dollars, does Justin save the first month by joining the gym at the discounted price rather than at the regular price?

Justin saves $5 the first month.

25. ***Continued.*** Please refer to the previous page for task explanation.

Justin creates a system of equations based on the equation from **part A** and the equation from **part B**. The solution to the system of equations is (−3, −25).

C. Why is the point (−3, −25) **not** a possible solution in this situation?

It is not a possible solution because you cannot have a negative fee or negative amount of money.

51. Justin is joining a gym. The gym is currently offering a discount on the fee to join and on the monthly rate.

The discounted price, in dollars, the gym charges can be represented by the equation $y = 10x + 5$.

A. What are the slope and the y-intercept of the equation? What do the slope and the y-intercept each represent in this situation?

The slope is 10, and the y-intercept is 5. The slope is representing the monthly rate (months = x). The y-intercept is representing the fee to join (\$5).

The regular price, in dollars, the gym charges can be represented by the equation $y = 15x + 20$.

B. How much money, in dollars, does Justin save the first month by joining the gym at the discounted price rather than at the regular price?

$y = 10(1) + 5 \rightarrow y = \$15$

$y = 15(1) + 20 \rightarrow y = \$35$

$$\begin{array}{r} 35 \\ -\,15 \\ \hline 20 \end{array}$$

Justin saves 20 dollars by joining the first gym.

51. ***Continued.*** Please refer to the previous page for task explanation.

Justin creates a system of equations based on the equation from **part A** and the equation from **part B**. The solution to the system of equations is (−3, −25).

C. Why is the point (−3, −25) **not** a possible solution in this situation?

$15\,(y = 10x + 5)$
$10\,(y = 15x + 20)$

$15y = 150x + 75$
$-\;10y = 150x + 200$

$\frac{5y}{5} = \frac{-125}{5}$

$y = -25$

$-25 = 10x + 5$
$-5 \quad -5$

$\frac{-30}{10} = \frac{10x}{10}$

$-3 = x$

Even though these numbers fit mathmatically, in the real world you can't be paying a gym a negative amount of money. That means that they would be paying you! So, to make this answer possible, the numbers would have to be positive. This is why this solution would not be possible in this situation.

PRACTICE SET 1*

Subject: Math **Item: Justin Joins a Gym** **Grade: 8**

Name____

Number	Score	Consensus	Notes
P1-1			
P1-2			
P1-3			
P1-4			
P1-5			
P1-6			
P1-7			
P1-8			
P1-9			
P1-10			

*** Responses in this set do not have true scores. Apply scores based on scoring criteria.**