

Translating Words Into Math Examples

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Pizza Word Problem 1

Eevee had 32 slices of pizza. Ash gave her 24 slices of pizza. Eevee teaches and gives 48 slices to her class. How many slices of pizza does Eevee have after she gives her classes the slices?

Pizza Word Problem 1 Solution

Eevee had 32 slices of pizza. Ash gave her 24 slices of pizza. Eevee teaches and gives 48 slices to her class. How many slices of pizza does Eevee have after she gives her classes the slices?

Slices of Pizza for Eevee

= 32 slices + 24 slices - 48 slices

= 56 slices - 48 slices

= **8 slices**

Pizza Word Problem 2

Goku had 660 slices of pizza. 400 slices were cheese. 100 slices were pepperoni. 40 were pineapple. The rest were sausage. How many slices were sausage?

Pizza Word Problem 2 Solution

Goku had 660 slices of pizza. 400 slices were cheese. 100 slices were pepperoni. 40 were pineapple. The rest were sausage. How many slices were sausage?

Slices of Sausage

= 660 slices - 400 slices - 100 slices - 40 slices

= 660 slices - 500 slices - 40 slices

= 660 slices - 540 slices

= **120 slices**

Pizza Word Problem 3

If a large pizza cost \$15, and the tip rate is 10%, what is the total price paid. Find the tip and then round to the nearest dollar. Find the total using the cost of the large pizza and the rounded tip.

Tip:

Total:

Pizza Word Problem 3 Solution Part 1

If a large pizza cost \$15, and the tip rate is 10%, what is the total price paid. Find the tip and then round to the nearest dollar. Find the total using the cost of the large pizza and the rounded tip.

Tip: Tip = Cost x Tip Rate

As a result, Tip = \$15 x 10% = \$15 x 0.10 = \$1.50

Alternately, Tip = \$15 x 10% = \$15 x 10/100 = \$15 x 1/10 = \$15/10 = \$1.50

Either way take the result, and round to the nearest dollar.

So Tip = \$1.50 ≈ **\$2.00**

Pizza Word Problem 3 Solution Part 2

If a large pizza cost \$15, and the tip rate is 10%, what is the total price paid. Find the tip and then round to the nearest dollar. Find the total using the cost of the large pizza and the rounded tip.

Based on the our last slide, Tip = \$2.00 due to rounding said tip to the nearest dollar.

Total: Total = Cost + Tip

As a result, Total = \$15 + \$2 = **\$17**

Percentage Problem

1

A math class has 30 students. Approximately 70% passed their last math test. How many students passed the last math test?

Percentage Problem 1 Solution

A math class has 30 students. Approximately 70% passed their last math test. How many students passed the last math test?

Students That Passed

= Amount of Students x Percent of Students that passed

$$= 30 \times 70\%$$

$$= 30 \times 70/100 = 30 \times 7/10 = 3 \times 7$$

$$= \mathbf{21}$$

There are 21 students that passed the last math class.

Percentage Problem

2

A math class has 80 students. 20% of those students failed their last math test. How many students passed the last math test?

Percentage Problem 2 Solution

A math class has 80 students. 20% of those students failed their last math test. How many students passed the last math test?

If 20% of the students failed, then let's look at those who passed.

Percent of Students Who Passed = $100\% - \text{Percent Students Who Failed} = 100\% - 20\% = 80\%$

Students That Passed

= Amount of Students x Percent of Students that passed

= $80 \times 80\% = 80 \times 80/100 = 80 \times 8/10 = 8 \times 8$

= **64**

There are 64 students that passed the last math class.

Finding The Right Number Problem 1

When 2 is added to the product of 6 and a specific number, the result is 20. What is the value of the number?

Finding The Right Number Problem 1 Solution Part 1

When 2 is added to the product of 6 and a specific number, the result is 20. What is the value of the number?

Let x = a specific number

$$\Rightarrow 6x + 2 = 20$$

(Next, Take 2 from both sides)

$$\Rightarrow 6x = 18$$

(Next, Divide both sides by 6)

$$\Rightarrow \mathbf{x = 3}$$

Finding The Right Number Problem 1 Solution Part 2

When 2 is added to the product of 6 and a specific number, the result is 20. What is the value of the number?

Check:

Before we had $6x + 2 = 20$

If $x = 3$, then $6(3) + 2 = 20$

$\Rightarrow 18 + 2 = 20$

$\Rightarrow \mathbf{20 = 20}$

This is a true statement things check out.

Finding The Right Number Problem 2

Twice the difference of a number and one is four more than that number. Find the number.

Finding The Right Numbers Problem 2 Solution Part 1

Twice the difference of a number and one is four more than that number. Find the number.

Let $x =$ a number

Translate the words into an equation

$$\Rightarrow 2(x - 1) = x + 4$$

(Next, distribute the 2 on the lefthand side)

$$\Rightarrow 2x - 2 = x + 4$$

(Then, add 2 to both sides)

$$\Rightarrow 2x = x + 6$$

(Next, subtract x from both sides)

$$\Rightarrow \mathbf{x = 6}$$

Finding The Right Numbers Problem 2 Solution Part 2

Twice the difference of a number and one is four more than that number. Find the number.

Check:

We had the equation $2(x - 1) = x + 4$

If $x = 6$ then $2(6 - 1) = 6 + 4$

$\Rightarrow 2(5) = 10$

$\Rightarrow \mathbf{10 = 10}$

This is a true statement things check out.

Finding The Right Number Problem 3

Twice the sum of a number and
four is equal to six times a number.
Find that number.

Finding The Right Number Problem 3 Solution Part 1

Twice the sum of a number and four is equal to six times a number.
Find that number.

Let x = a number

Translate the words into an equation

$$\Rightarrow 2(x + 4) = 6x$$

(Next, distribute the 2 on the lefthand side)

$$\Rightarrow 2x + 8 = 6x$$

(Next, subtract $2x$ from both sides)

$$\Rightarrow 8 = 4x \text{ or alternately } 4x = 8$$

(Then divide both sides by 4)

$$\Rightarrow \mathbf{x = 2}$$

Finding The Right Number Problem 3 Solution Part 2

Twice the sum of a number and four is equal to six times a number. Find that number.

Check:

Before we had, $2(x + 4) = 6x$

If $x = 2$ then $2(2+4) = 6(2)$

$\Rightarrow 2(6) = 6(2)$

$\Rightarrow 12 = 12$

This is a true statement things check out.

Finding The Right Numbers Problem 1

The sum of two numbers is 84.
One of those numbers is 12 more
than the other number. What are
the two numbers?

Finding The Right Numbers Problem 1 Solution Part 1

The sum of two numbers is 84. One of those numbers is 12 more than the other number. What are the two numbers?

Let x = one number

Let y = another number

Break down the first statement:

$$x + y = 84$$

Break down the second statement:

We can say $y = x + 12$, since we have a number and the other is 12 more than that number

Finding The Right Numbers Problem 1 Solution Part 2

The sum of two numbers is 84. One of those numbers is 12 more than the other number. What are the two numbers?

Based on previous the slide:

Let's find x first. We know that $x + y = 84$ and that $y = x + 12$. Since $y = x + 12$, we can substitute that into $x + y = 84$.

$$\text{Thus, } x + (x + 12) = 84$$

$$= x + x + 12 = 84 \text{ (Since we don't have to do anything further with distribution)}$$

$$\Rightarrow 2x + 12 = 84$$

$$\Rightarrow 2x = 72$$

$$\mathbf{x = 36}$$

This is just one number, we are not done though.

Finding The Right Numbers Problem 1 Solution Part 3

The sum of two numbers is 84. One of those numbers is 12 more than the other number. What are the two numbers?

Based on previous the slide:

Now we have the first number, then we can use that to find the number. Since $y = x + 12$, then

$$y = 36 + 12, \text{ thus } \mathbf{y = 48}$$

Check:

Before we had $x + y = 84$.

If $x = 36$ and $y = 48$, then $36 + 48 = 84$

$$\Rightarrow \mathbf{84 = 84}$$

This is a true statement things check out.

Finding The Right Numbers Problem 2

One number is 3 less than another number. If the sum of the two numbers is 177, find each number.

Finding The Right Numbers Problem 2 Solution Part 1

One number is 3 less than another number. If the sum of the two numbers is 177, find each number.

Let x = first number

Let y = second number

Break down the first statement:

We can say $y = x - 3$, since we have a number and the other is 3 less than that number.

Break down the second statement:

$$x + y = 177$$

Finding The Right Numbers Problem 2 Solution Part 2

One number is 3 less than another number. If the sum of the two numbers is 177, find each number.

Based on previous the slide:

Let's find x first. We know that $x + y = 177$ and that $y = x - 3$. Since $y = x - 3$, we can substitute that into $x + y = 177$.

$$\text{Thus, } x + (x-3) = 177$$

$= x + x - 3 = 177$ (Since we don't have to do anything further with distribution)

$$\Rightarrow 2x - 3 = 177$$

$$\Rightarrow 2x = 180$$

$$\mathbf{x = 90}$$

This is just one number, we are not done though.

Finding The Right Numbers Problem 2 Solution Part 3

One number is 3 less than another number. If the sum of the two numbers is 177, find each number.

Based on previous the slide:

Now we have the first number, then we can use that to find the number. Since $y = x - 3$, then

$$y = 90 - 3, \text{ thus } \mathbf{y = 87}$$

Check:

Before we had $x + y = 177$.

If $x = 90$ and $y = 87$, then $90 + 87 = 177$

$$\Rightarrow \mathbf{177 = 177}$$

This is a true statement things check out.

Finding The Right Numbers 3 (Consecutive Integers Problem)

The sum of 3 consecutive integers is 63. Find the integers.

Finding The Right Numbers 3 (Consecutive Integers Problem) Solution 1

The sum of 3 consecutive integers is 63.
Find the integers.

First what is a consecutive integer?

Consecutive: Following in an uninterrupted succession or order

Integer: A whole number. A number that is not a fraction or decimal.

Consecutive Integers: Integers that follow each other in order. They have a difference of 1 between every two numbers.

Finding The Right Numbers 3 (Consecutive Integers Problem) Solution Part 2

The sum of 3 consecutive integers is 63.
Find the integers.

Let x = first number

Let y = second number

Let z = third number

Break down the statement:

The sum of 3 consecutive integers is 63.

This lets us rewrite things a bit.

Since the numbers are consecutive, then
we have x , $y = x + 1$, $z = y + 1$

And as a result $x + y + z = 63$

Finding The Right Numbers 3 (Consecutive Integers Problem) Solution Part 3

The sum of 3 consecutive integers is 63. Find the integers.

Using $x + y + z = 63$, and using Since the numbers are consecutive, then we have $x, y = x + 1, z = y + 1$

If we use $z = y + 1$ first, and substitute that into $x + y + z = 63$, then

$$x + y + (y+1) = 63 \text{ or } x + y + y + 1 = 63$$

$$\Rightarrow x + 2y + 1 = 63$$

If we use $y = x + 1$ first, and substitute that into $x + y + z = 63$, then

$$x + 2(x+1) + 1 = 63 \text{ or } x + 2x + 2 + 1 = 63$$

$$\Rightarrow 3x + 3 = 63 \Rightarrow 3x = 60 \Rightarrow \mathbf{x = 20}$$

This is just one number though.

Finding The Right Numbers 3 (Consecutive Integers Problem) Solution Part 4

The sum of 3 consecutive integers is 63. Find the integers.

Since $x = 20$, $y = x + 1$, then $y = 20 + 1$, so **$y = 21$** .

Since $y = 21$, $z = y + 1$, then $z = 21 + 1$, so **$z = 22$** .

Check:

Since $x + y + z = 63$ and if $x = 20$, $y = 21$, and $z = 22$,

$$\text{Then } 20 + 21 + 22 = 63$$

$$\Rightarrow 41 + 22 = 63$$

$$\Rightarrow 63 = 63$$

This is true statement. (Note, 20,21, and 22) are consecutive integers.

Pond Problem

Owners of a recreation area are filling a small pond with water. They are adding water at a rate of 50 liters per minute. There are 500 liters in the pond to start.

(a) Let **W** represent the total amount of water in the pond (in liters), and let **T** represent the total number of minutes that water has been added. Write an equation relating **W** to **T**.

(b) Use the equation you wrote in part (a) to find the total amount of water after 40 minutes.

Pond Problem Solution Part 1

Owners of a recreation area are filling a small pond with water. They are adding water at a rate of 50 liters per minute. There are 500 liters in the pond to start.

(a) Let **W** represent the total amount of water in the pond (in liters), and let **T** represent the total number of minutes that water has been added. Write an equation relating **W** to **T**.

W is the dependent variable (in liters)

T is the independent variable (in minutes)

Slope = Rate Of Change = 50 (in liters per minute)

W-Intercept = 500 (in liters)

This implies that **$W = 50T + 500$** .

Pond Problem Solution Part 2

Owners of a recreation area are filling a small pond with water. They are adding water at a rate of 50 liters per minute. There are 500 liters in the pond to start.

(b) Use the equation you wrote in part (a) to find the total amount of water after 40 minutes.

Use the equation you wrote in part (a) to find the total amount of water after 40 minutes.

$$W = 50T + 500, \text{ so } W = 50(40) + 500 = 2000 + 500 = 2500$$

So **$W = 2500$** or **The water is at 2500 liters after 40 minutes have passed.**