



Math Virtual Learning

Algebra 2A

Evaluating and Composing Polynomial Function

April 29, 2020



Lesson:

Composing Polynomials

Learning Target:
LT D3 I can evaluate polynomial functions.

Objective:
Students will be able to compose polynomial functions.

Warm Up

For today's warm up, answer the brain teaser below

What makes this number unique:
8,549,176,320?

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Question

#10

8,549,176,320

Warm Up Answer

Answer: It has each number, zero through nine, listed in alphabetical order.

Question

#10

8,549,176,320

Lesson

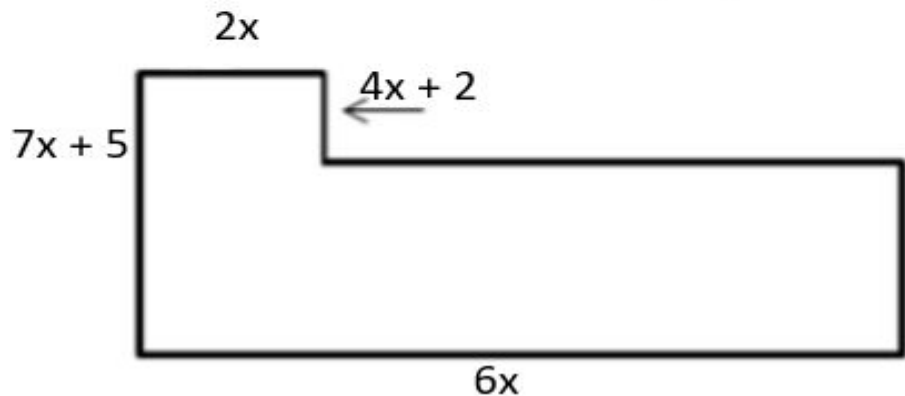
You will need to watch the following videos:

[Video 7 Composition of Functions Word Problems](#)

[Perimeter and Area of Irregular Shapes](#)

Practice

1. HiBoy is running a customer appreciation sale. You have a \$2.00 off coupon and also a 15% off coupon. Write the cost function $C(x)$ of what it is going to cost you when you go through the drive-thru window, if they determine your bill by first applying the \$2.00 off coupon and then the 15% discount.
2. Find the area function $A(x)$, and the perimeter function $P(x)$ of the following shape. Give the answer in standard polynomial form.



1. HiBoy is running a customer appreciation sale. You have a \$2.00 off coupon and also a 15% off coupon. Write the cost function $C(x)$ of what it is going to cost you when you go through the drive-thru window, if they determine your bill by first applying the \$2.00 off coupon and then the 15% discount.

Step 1. Identify variables

$C(x)$ = cost

x = bill before coupons

Step 2. List what is happening

1st Coupon: \$2.00 off, this means I will be subtracting 2 from x (the bill)

2nd Coupon: 15% off, this means I won't pay 15% of my bill.

To find out how much I will pay,
subtract from 100%

$$100 - 15 = 85\% \quad \text{← how much I pay}$$

Now convert to a decimal to use

$$85\% = 0.85$$

Step 3. Set up equation.

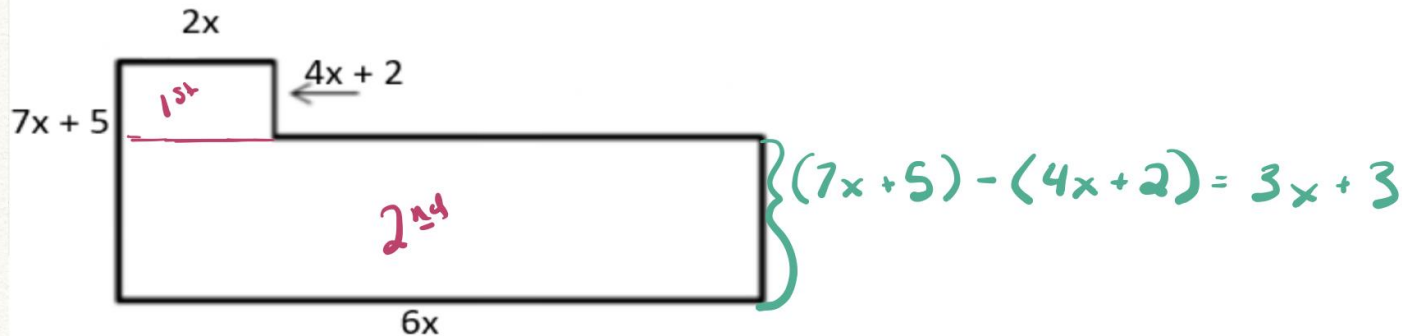
$$C(x) = 0.85(x - 2)$$

How do you know if you set up the problem correctly?

According to PEMDAS, we would 1st subtract 2 from x (the bill) and then find 85% of that. That is the order we wanted to take the coupon's, so we set up the problem correctly. Now simplify & you have your answer.

$$\text{Answer: } C(x) = 0.85x - 1.7$$

2. Find the area function $A(x)$, and the perimeter function $P(x)$ of the following shape. Give the answer in standard polynomial form.



To find area: break the figure into 2 rectangles whose area is length \times width.

$$\text{Total Area} = (\text{area of 1st rectangle}) + (\text{area of 2nd rectangle})$$

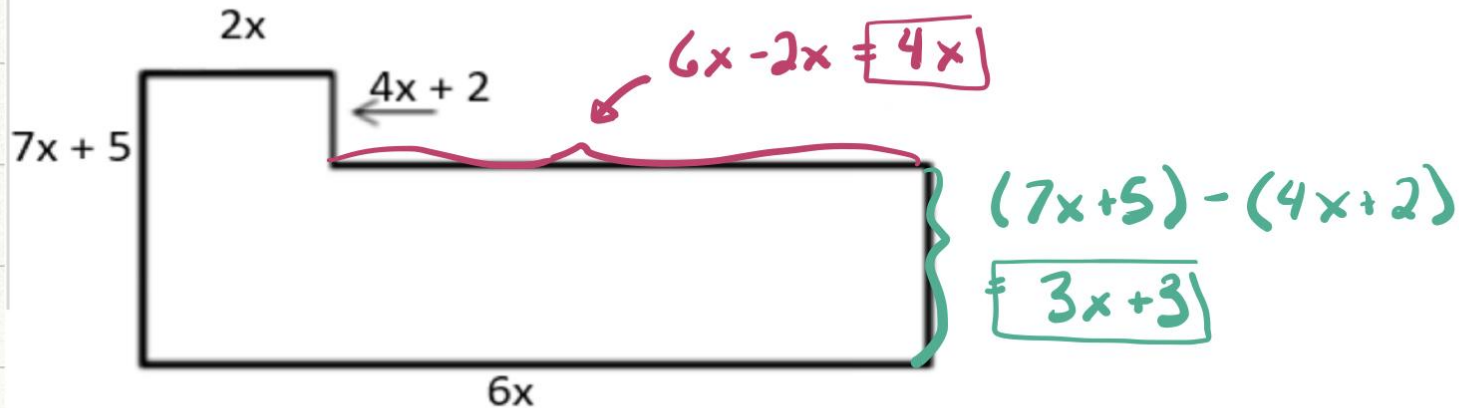
$$= (2x)(4x + 2) + (3x + 3)(6x)$$

$$= 8x^2 + 4x + 18x^2 + 18x \quad \text{Distribute}$$

$$A(x) = \boxed{26x^2 + 22x}$$

Combine like terms

2. Find the area function $A(x)$, and the perimeter function $P(x)$ of the following shape. Give the answer in standard polynomial form.



To find Perimeter: add together all the sides.

$$\begin{aligned} P(x) &= 2x + (7x + 5) + 6x + (3x + 3) + 4x + (4x + 2) \\ &= 26x + 10 \end{aligned}$$

Solutions to Practice Problems

1. $C(x) = .85x - 1.7$

2. $A(x) = 26x^2 + 22x$

$$P(x) = 26x + 10$$

Additional Resources

[Composition of Functions Real World Example](#)

Additional Practice

[Composition of Functions – Word Problems](#)