WORKSHEET
POLYNOMIAL VALUE

Group : _____

Member: _____

Learning Objectives:
- Students can understand the value of polynomials using the substitution method.
- Students can understand the value of polynomials using the horner method.

Example

An object moves according to the function $y(t) = 5t^2 - 4t + 8$ with y in meters and t in seconds. How many meters does the object move in 2 seconds?

Answer:

Substitution

$$y(2) = 5(2)^2 - 4(2) + 8$$
$$y(2) = 5 \times 4 - 4 \times 2 + 8$$
$$y(2) = 20 - 8 + 8$$
$$y(2) = 20$$

Horner

2	5	-4	8
		10	12
	5	6	20

So, the object has moved 20 meters in 2 seconds.

Assignment

Read the following text carefully and answer correctly!

1. A packaging company models the volume of a carton based on its height x in centimeters:

$$3x^3 - 85x^2 + 600x$$

What is the volume of the box if the height is 5 cm?

Answer:

Substitution

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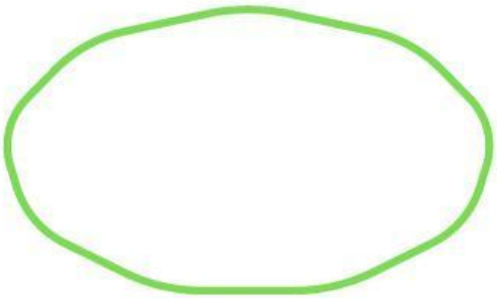
Horner



2 A student walks from home to school. The distance the student walks after t minutes is modeled by

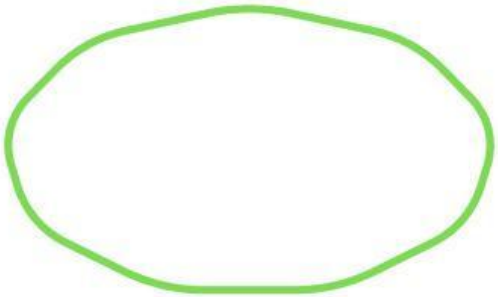
$$d(t) = 3t^2 + 2t + 1$$

If the student walks for 4 minutes, how far has the student walked?

Answer:

Substitution

Horner



3 A family checks their electricity use every week. The electricity use in week t (in killowatt-hours) is modeled by

$$E(t) = t^4 - 6t^3 + 11t^2 - 6t + 20$$

How much electricity did they use in week 2?

Answer:

Substitution

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Horner

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4 A Gojek driver tracks the distance he travels in the first few minutes. The distance after t minutes is modeled by

$$d(t) = 0.1t^2 + 0.3t$$

How far does he travel in 5 minutes?

Answer:

Substitution

Horner

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Reflection

If you are given any polynomial, how would you decide whether to use substitution or Horner's method? **Explain** your thinking!

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