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Assignment - 6

Java Practice - Using Math Class:

According to the assignment I have to practice with Java.Math class and fix the code that had error. I fix it and run in my computer. Then I write down all the 5 equation that I solve and also write the math methods that I use from the Math class.

Equation 1 - Height of Right Triagle:

Formula used:

$$height = b * \tan(angle)$$

Input I give one base and angle.

Here I use this Method →

(i) Math.tan[].

(ii) Math.toRadians().

This find the height of right angle triangle from base and angle.

Equation 2 - Compound Interest:

Formula Used:

$$A = p * (1 + r/n)^{(n*t)}$$

Here I use:

- Math.pow()

This find total amount after some years. I take inputs like prineiple, rate time, n.

Equation 3: - Cantesian to Polar Convention:

Formula Used:

$$r = \sqrt{(x^2 + y^2)}$$

$$\theta = \text{atan}(y/x)$$

I Used:

(i) Math.sqrt()

(ii) Math.pow()

(iii) Math.atan()

(iv) Math.toDegrees()

This one show me the radius and angle of polar coordinate from x and y value.

Equation 4:- Distance Between Two Points:

Formula Used:

$$\text{distance} = \sqrt{((x_2-x_1)^2+(y_2-y_1)^2)}$$

I Used:

(i) Math.sqrt()

(ii) Math.pow()

This find distance between 2 points on x-y plane.

Equation 5 - Solve Quadratic Equation:

Formula Used:

$$x = (-b \pm \sqrt{b^2-4ac})/2a$$

I Used:

(i) Math.sqrt()
(ii) Math.pow()
(iii) Math.min()

This program check if real roots or not. Then print both roots and also find smallest positive root.

(x) Math Methods I Used Overall:

(i) Math.sqrt()
(ii) Math.pow()
(iii) Math.tan()
(iv) Math.toRadians()
(v) Math.atan()
(vi) Math.toDegrees()
(vii) Math.min()

Sample Input I Gave:

Base = 5
Angle = 30
P = 1000, r = 0.05, n = 4, t = 2
x = 3, y = 4

$x1 = 2,\ y1 = 3,\ x2 = 8,\ y2 = 7$

$a = 1,\ b = -3,\ c = 2$

Output I Got on cmd:

Height is: 2.8867513459

Total Amount: 1104.4861011814 12

Radius: 5.0, Angle: 53.1301

Distance is: 7.211102550927978

Roots are: 2.0 and 1.0

Smallest positive root is: 1.0