

Function

function $f(x)$ solve the equation $x \rightarrow y$

PITA

$f(g(x))$

problem \Rightarrow write function

Roots of a Function (x) x intercept (graph cross x -axis)

$x \Rightarrow f(x)=0$

factor of a question

Quadratic Equations

expanding FOIL: First Outer Inner Last

factoring factor constant/multiply, calc coefficient/add

PITA

solving $f(x)=\text{zero} \Rightarrow \text{factoring} \Rightarrow \text{zero factor}$

PITA

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

graph the equation

other quadratics problems

word question

charts question (build equation, plug in point)

forms of quadratic

std form $y = ax^2 + bx + c$

vertex (h,k) , min/max $y = a(x - h)^2 + k$

a parabola opening up for positive a

std \leftarrow vertex $y = x^2 - 4x - 12$

1) zero, move $0 = x^2 - 4x - 12 \Rightarrow 12 = x^2 - 4x$

2) add half sq $12 + 4 = x^2 - 4x + 4$

3) sq form $16 = (x-2)^2$

4) vertex $y = (x-2)^2 - 16$

Analysis in Science: question in scientific context

world problem: identify the variable

chart/graph/table related

scientific situation \Rightarrow conclusion, POE strategy

Meaning in context

Plug in number to see

POE

math concept: intercept, slope, and coefficients

SUMMARY

1 Given a function, you put an x value in and get an $f(x)$ or y value out.

2 Look for ways to use Plugging In and PITA on function questions.

3 For questions about the graphs of functions, remember that $f(x) = y$.

4 If the graph contains a labeled point or the question gives you a point, plug it into the equations in the answers and eliminate any that aren't true.

5 To find a point of intersection, set the equations equal, plug a given point into both equations to see if it works, or graph the equations on your calculator when it is allowed.

SUMMARY - quadratic equation

6 When solving quadratic equations, you may need to FOIL or factor to get the equation into the easiest form for the question task.

7 To solve for the roots of a quadratic equation, set it equal to zero by moving all the terms to the left side of the equation, or use the quadratic formula:

8 The vertex form of a parabola equation is $y = a(x - h)^2 + k$, where (h, k) is the vertex. To get a parabola in the standard form into vertex form, complete the square.

SUMMARY - quadratic equation (cont)

9 Plugging In can also be used on Meaning In Context questions. If a question asks you to identify a part of an equation, plug your own amounts into the equation so you can start to see what is going on.

10 Analysis in Science questions may seem weird, but they can usually be handled with the same strategies as those used for other math questions. Plug In or translate, read the chart or text carefully, and always use Process of Elimination to get rid of answers that don't match the data or don't make sense.

11 If you come across a hard Meaning in Context question or Science question, see if you can eliminate anything and make a guess. If not, find another question to do!