

BE-Alg. 1 TUESDAY 2-10-09

① $\frac{1}{2x} + \frac{3}{4x^2}$

② $y = f(x) = 5x^2 + 2x + 1$

Ⓐ $f(0) = ?$

Ⓑ $f(2) = ?$

Ⓒ $f(-1) = ?$

Ⓓ $f(2a) = ?$

③ GRAPH $y = f(x) = x^2 - 8x + 12$

• Homework review Pg 528 #1→3,
6, 9, 18.

1.
In the BE we graphed the quadratic function $y = x^2 - 8x + 12$

The corresponding quadratic equation is when y is equal to zero

$$0 = x^2 - 8x + 12$$

This also represents, when solved, the x -intercepts since by definition when $y = 0$ in the x - y plane you are on the x -axis.

You should check your graph and verify the solution to: $0 = x^2 - 8x + 12$

is where the parabola crosses the x -axis.

$$\begin{array}{l} \text{sum} \Rightarrow -8 \\ \text{prod} \Rightarrow +12 \end{array}$$

$$0 = (x - 2)(x - 6)$$

$$\boxed{x = \{2, 6\}}$$

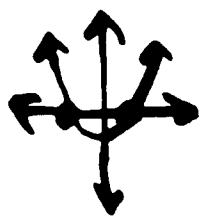
②d

THE SOLUTIONS TO THE QUADRATIC EQUATION (the x-intercepts) ARE ALSO CALLED THE ROOTS OF THE EQUATION OR THE ZEROS OF THE FUNCTION.

WHAT THE DISCRIMINANT TELLS YOU ABOUT THE ROOTS OF THE QE

$$b^2 - 4ac$$

ROOTS

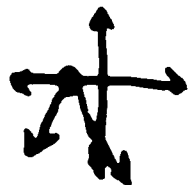


POSITIVE, PERFECT SQUARE

2 RATIONAL roots

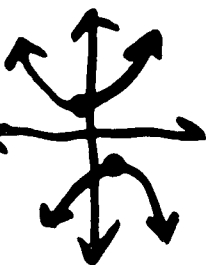
POSITIVE, NOT PERFECT SQUARE

2 IRRATIONAL roots



ZERO

1 RATIONAL root
PST $\Rightarrow (a \pm b)^2$



NEGATIVE

0 roots, parabola never crosses x-axis.

Ex 2
Pg 534

GRAPH, check the roots:
 $b^2 + 4b = -4$

A "double root" $\Rightarrow d = 0$
 $\therefore$ parabola just "touches" x-axis
AT ONE point.

Ex 3
Pg 534

GRAPH, check the roots:
 $x^2 - x + 4 = 0$

No roots, parabola never crosses
the x-axis!

Homework: • Read Ch 10-2 Solving Quadratic
Eq. by Graphing
• Pg. 535-536 #1, 2, 4-6.