

**STATION #1** SOLVING POLYNOMIALS

SOLVE THE POLYNOMIAL

1)  $f(x) = x^3 + 3x^2 - 10x - 24$

2)  $y = 35x^3 + 102x^2 - 11x - 6$

3)  $f(x) = x^3 + 2x^2 - 12x - 24$

4)  $y = x^3 - 9x^2 + 25x - 25$

5)  $f(x) = (x+3)(x-5)(x^2 - 4x - 2)$

6)  $f(x) = (5x-1)(x+8)(x^2 + 9)$

**STATION #2**

**FACTORING POLYNOMIALS**

**FACTOR COMPLETELY**

1)  $x^3 + x^2 - 4x - 4$

2)  $125x^3 + 8$

3)  $2x^4 - 10x^3 + 18x^2 - 90x$

4)  $x^4 - 5x^2 + 4$

5)  $16x^5 - 54x^2$

**STATION #3**

WRITING POLYNOMIALS

WRITE THE POLYNOMIAL (IN STANDARD FORM) WITH THE GIVEN SOLUTIONS

1)  $x = -3, 4, 6$

2)  $x = -\frac{3}{5}, \frac{1}{2}, 5$

3)  $x = -\sqrt{2}, \sqrt{2}, 3$

4)  $x = 1, 5i$

STATION #4

FUNDAMENTAL THEOREM  
OF ALGEBRA

- 1) HOW MANY REAL SOLUTIONS DOES THE FOLLOWING FUNCTION HAVE?

$$f(x) = x^3 - 3x^2 + 3x + 4$$

- 2) WHAT ARE THE REAL ZEROS FOR THE FUNCTION  $f(x) = (x+8)(5x-1)(x^2-2x+3)$

- 3) DESCRIBE THE NATURE OF THE ZEROS FOR THE POLYNOMIAL  $3x^3 - 13x^2 - 3x + 45$

- 4) HOW MANY RATIONAL SOLUTIONS DOES THE FOLLOWING FUNCTION HAVE?

$$f(x) = (x^2 - 5)(7x - 3)(x^2 + 4)$$

STATION #5

TOOL BOX

1) EVALUATE  $f(-2)$  FOR THE FUNCTION  
 $f(x) = -3x^3 + x^2 - 5x - 7$

2) SIMPLIFY THE FOLLOWING EXPRESSION  
 $2(x-5)^2 - 3(7x-1)$

3) SIMPLIFY THE FOLLOWING EXPRESSION  
 $2(x^2 + 4) - (x^2 + x - 5) + 4(3 - x)$

4) CLASSIFY THE FOLLOWING AS RATIONAL,  
IRRATIONAL, OR COMPLEX  
A)  $\frac{-2}{3}$       B) 7      C)  $1 - \sqrt{5}$       D)  $3 + 2i$