

Alg 2 Polynomial Review Day2

Name Key hr

1. Factor the polynomial function

$$f(x) = x^2 + 6x + 8 = (x+4)(x+2)$$

$$\begin{array}{r} 2 \times 4 \\ 8 \times 1 \\ \hline 2 \times 4 \\ 8 \times 1 \end{array}$$

2. For how many values of x will $f(x) = 0$?

$$f(x) = x^2 - 7x + 10 \rightarrow 2$$

$$\begin{array}{r} 10 \times 1 \\ -2 \times -5 \\ \hline -2 \times -5 \end{array}$$

$$(x-5)(x-2) = 0$$

$$x-5=0 \quad x-2=0$$

$$x=5 \quad x=2$$

For how many values of x will $f(x) = 0$?

$$\begin{array}{l} 2 \\ x+4=0 \quad x+2=0 \\ x=-4 \quad x=-2 \end{array}$$

Factor the polynomials (3-5) completely. Where does it cross the x axis?

3. $f(x) = x^4 - 12x^2 + 27$

$$\begin{array}{r} 27 \times 1 \\ -3 \times -9 \\ \hline -3 \times -9 \end{array}$$

$$(x^2-3)(x^2-9)$$

$$x^2-3=0 \quad x^2-9=0$$

$$x^2=3 \quad x^2=9$$

$$x=\pm\sqrt{3} \quad x=\pm 3$$

4 intercepts

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

$$\begin{array}{r} -5 \times 1 \\ 5 \times -1 \\ \hline 5 \times -1 \end{array}$$

$$(x^2-1)(x^2+5)$$

$$x^2-1=0 \quad x^2+5=0$$

$$x^2=1 \quad x^2=-5$$

$$x=\pm 1 \quad x=\pm\sqrt{-5} \rightarrow \pm i\sqrt{5}$$

2 intercepts

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

$$\begin{array}{r} 3 \times 1 \\ 1 \times 3 \\ \hline 1 \times 3 \end{array}$$

$$(x^2+1)(x^2+3)$$

$$x^2+1=0$$

$$x^2+3=0$$

$$x^2=-1$$

$$x^2=-3$$

$$x=\pm i$$

$$x=\pm\sqrt{-3} \rightarrow \pm i\sqrt{3}$$

6. For the polynomial $g(x)$, $g(-5)=0$ & $g(2)=0$. Write a function for $g(x)$ in standard form.

Assume $g(x)$ is quadratic.

$$x=-5$$

$$x=2$$

$$x+5=0$$

$$x-2=0$$

$$g(x) = (x+5)(x-2) = x^2 - 2x + 5x - 10 = x^2 + 3x - 10$$