PreCalculus Algebra Test 2 Practice
No Calculator

Chapters 3 and 4.

I. Sketch the graph of the following. Use your calculator to check your graphs.

1. $P(x)=(x-1)(x+3)$
2. $f(x)=-x^2+3$
3. $f(x)=(x+1)^3$

II. Find all the zeros of the following polynomials.

4. $P(x)=x^4+8x^2+16$

   $x=\pm 2i$

5. $3x^3+2x^2-3x-2=0$

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

6. $x^4+11x^2+10=0$

   $x=\pm i, \pm i\sqrt{10}$

III. Divide.

7. $\frac{x^3-1}{x-1}$

   x^2+x+1

8. $\frac{x^4-2x^3+43x^2-189x-50}{x-4}$

   $x^3+2x^2+51x+15+\frac{10}{x-4}$

9. $\frac{x^3+12x^2+32x+51}{x+9}$

   $x^2+3x+5+\frac{6}{x+9}$

10. $\frac{x^3-x^2+2x-3}{x^2+3}$

    $x-1+\frac{-x}{x^2+3}$

IV. Find the intercepts, asymptotes, and sketch the graph of the functions. Use your calculator to check your graphs.

11. $f(x)=\frac{x-1}{x-3}$

    $x-\text{int}=1,\ y-\text{int}=\frac{1}{3},\ Vert\ Asym: x=3,\ Hor\ Aym: y=1$

12. $f(x)=\frac{5x+40}{-4x+4}$

    $x-\text{int}=-8,\ y-\text{int}=10,\ Vert\ Asym: x=1,\ Hor\ Aym: y=\frac{-5}{4}$

PreCalculus Algebra Test 2 Practice
No Calculator

V. Solve.

13. a) $\frac{3x-2}{x+1}=0$ $x=\frac{2}{3}$ b) $\frac{3x-2}{x+1}<0$ $\left(-1,\frac{2}{3}\right)$

14. a) $\frac{5}{2x+5}=\frac{3}{x+2}$ $x=-5$ b) $\frac{5}{2x+5}>\frac{3}{x+2}$ $(-\infty,-5)\cup\left(\frac{-5}{2},-2\right)$