Advanced Algebra

Review #3 for the End of Year Final

I can use the zero product property:

The zero product property say to equate your factors to zero and solve the equation. The solution that you get from those equations are the zeros, roots, solutions, or x intercepts. Those all mean the same thing.

Find the zero's of the following function:

Key point: Zero's mean the same thing as x intercepts.

Key point: We find x intercepts by factoring the function and then using the zero product property.

1) $f(x) = (x^2-25)(x-6)$ 2) $f(x) = x^3-7x^2+12x$ 3) $f(x) = x^2+11x+18$

4) If you have a function $f(x) = x^2-9x+20$ and the fact that this function factors to $f(x)= (x-5)(x-4)$, then what must be true about the value of $f(5)$?

5) If $f(x)= x^3-8x^2+5x+50$ and $(x-5)$ is a factor of the polynomial function, then what can you say about $f(5)$?

6) **I can graph and describe the behavior of the function:**

Key point: describing the behavior means finding all important points about the graph. Those are x intercepts, y intercepts, vertical asymptote, horizontal asymptote, end behavior, local maximum, local minimum, vertex, maximum, minimum, intervals where f(x) is positive, intervals where f(x) is negative...

Graph the following and describe as much as you can as stated above:

a) $f(x) = x(3-x)(x-4)(x-5)$ b) $f(x) = \frac{3x-2}{x^2-36}$

6) I can use my calculator to locate zero's of a function. Use your graph and table feature to locate the zero's of the following functions:
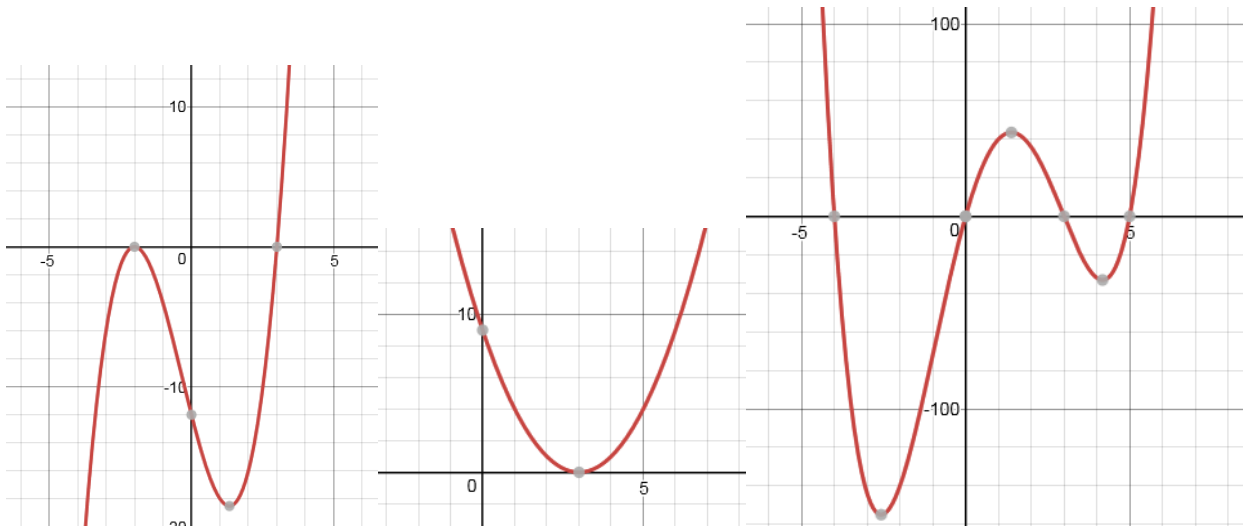
a) $y=x^3-5x^2-18x+72$ b) $y=x^3-8x^2+5x+50$

7) I can add rational expressions. Add the following expressions

$\frac{x+4}{2x} + \frac{x^2+4}{6x^2}$ b) $\frac{x+5}{x+2} + \frac{1}{x}$

8) Write the equations for the functions that are shown:

Graph the following functions and answer the question on which x interval is f(x) positive?

9) f(x) = x(4-x) (5+x)

10) f(x) = $\frac{x^2+2x-3}{x^2-2x-3}$