MATH 163 Practice Test #2

① What is the degree of the polynomial $f(x) = -6x^5 - 3x^4 + 2x^2 - 8$

② Describe the end behavior for the functions below:

a) $f(x) = -4x^6 - 3x^3 + 2x - 1$

b) $f(x) = 5x^5 - 3x^4 + 8x^2 + 4$

③ If $f(x) = x^2$, then what function would you get if you shifted $f(x)$ up 5 units and right 3 units?

④ Given $f(x) = (x-4)^2 + 2$ then what is the new function when $f(x)$ is 1) shifted left 2 units 2) shifted up 3 units then 3) reflected over the x-axis?

⑤ Evaluate the function:

$$f(x) = \begin{cases} 2x - 5, & x < -4 \\ x^2 + 3x, & x \geq -4 \end{cases}$$

a) $f(-6) =$

b) $f(-4) =$

c) $f(10) =$

d) $f(0) =$

⑥ Evaluate the function:

$$f(x) = \begin{cases} -3x - 4, & x \leq -3 \\ 2x + 1, & -3 < x < 4 \\ (x-1)^2, & x \geq 4 \end{cases}$$

a) $f(-4) =$

b) $f(-3) =$

c) $f(0) =$

d) $f(4) =$

e) $f(-1) =$

⑦ Divide: $\dfrac{x^2 + 3x + 6}{x - 1}$

⑧ Divide: $\dfrac{4x^4 - 3x^3 + 2x + 4}{x + 2}$

⑨ Divide: $\dfrac{8x^3 - 2x^2 + 8x - 1}{2x + 3}$

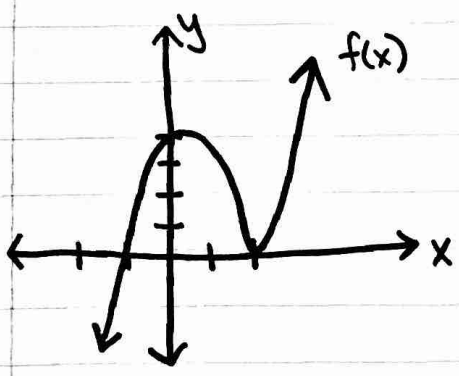
⑩ List all possible rational zeros of the function: $g(x) = 4x^3 - 2x^2 - 7x + 6$

(11) Factor: $2x^3 + x^2 - 5x + 2$

(12) Find all the zeros of the function
$g(x) = 3x^3 + 7x^2 - 22x - 8$

(13) Multiply $(4 + 2i)(3 - 4i)$

(14) Given the graph is of a cubic function, then what is the equation that represents the function:



(15) Determine the possible number of positive & negative zeros for the function:

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