

Group Quiz 3
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 Math 115

Key

No Calculators

*It is not enough to have a good mind.
 The main thing is to use it well.*

Rene Descartes (1596 - 1650)
 French philosopher and mathematician

1.) Find all real zeros of $P(x) = 6x^4 + x^3 - 21x^2 - x + 15$.

$$\begin{array}{r|rrrrr} & 6 & 1 & -21 & -1 & 15 \\ 1 & 6 & 7 & -14 & -15 & 0 \end{array}$$

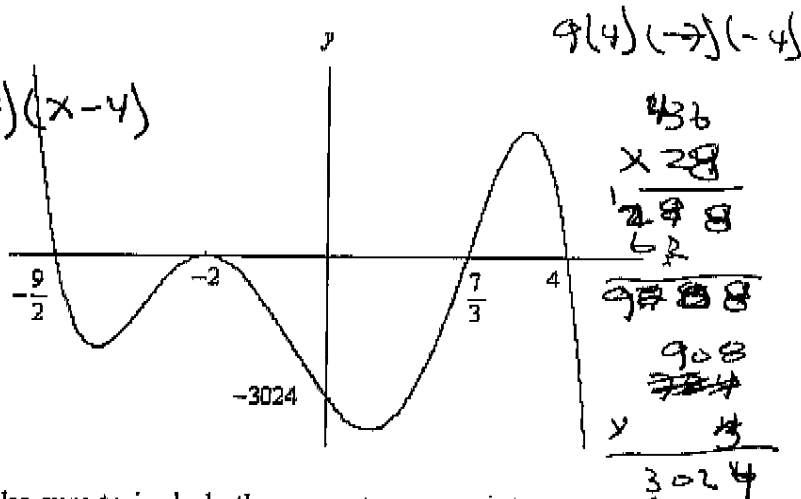
$$P(x) = (x-1)(6x^3 + 7x^2 - 14x - 15)$$

$$\begin{array}{r|rrrr} & 6 & 7 & -14 & -15 \\ -1 & 6 & 1 & -15 & 0 \end{array}$$

$$P(x) = (x-1)(x+1)(6x^2 + x - 15)$$

2.) Find the equation for a polynomial that has the same zeros and x-intercepts as that on the given graph.

$$P(x) = -3(2x+9)(x+2)^2(3x-7)(x-4)$$



3.) Sketch a graph of $P(x) = x^4 - 5x^2 + 4$. Make sure to include the correct zeros, y-intercept, and end behavior.

$$P(x) = (x^2 - 4)(x^2 - 1) = (x+2)(x-2)(x+1)(x-1)$$

