

Name : _____ ID. # : _____ SER. # : _____

Complete the following, show your work and simplify your answer:

- If $A = \{x|x \text{ is an odd positive integer, } 4 \leq x \leq 16\}$ and $B = \{x|x \text{ is a prime number } < 12\}$, then $A \cap B = \dots\dots\dots$

- The coefficient of x^2 in the product $(2x^2 + 3x - 1)(3x^2 - 5x + 2)$ is $\dots\dots\dots$

- The multiplicative inverse of -0.04 is $\dots\dots\dots$

- If $1 < x < 2$, then $\left| \frac{x-2}{|x|-|x-1|} \right| = \dots\dots\dots$

- When rationalized, the expression $\frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}} = \dots\dots\dots$

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Complete the following, show your work and simplify your answer:

- $A = \{x|x \text{ is an even positive integer, } 6 \leq x < 20\}$ and
 $B = \{x|x \text{ is a composite number } \leq 17\}$, then find $A \cap B = \dots\dots\dots$

- $-2 < x < 1$, then $\left| \frac{x+2}{|x-1|+|x+4|} \right| = \dots\dots\dots$

- In the product $(3 - 2x)(2x^2 - 5x + 1)(3 + 2x)$ the leading coefficient is $\dots\dots\dots$ and the degree is $\dots\dots\dots$

- In the set $= \left\{ -\frac{8\sqrt{27}}{\sqrt{12}}, \frac{4}{0}, \frac{\pi}{\pi+2}, -41.123456789, 0.232332333\dots\dots \right\}$

the rational number(s) is (are) $\dots\dots\dots$

- When rationalized, the expression $\frac{\sqrt[5]{2}}{\sqrt[5]{9xy^3}} = \dots\dots\dots$

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Complete the following, show your work and simplify your answer:

- In the set $\{8.112233\dots, \frac{\sqrt{9}}{\sqrt{21}}, \frac{\pi^2}{\pi^2+1}, -\sqrt{-16}, 14.235235235\dots, \frac{7}{22}\}$,

the **irrational** number(s) is (are)

- If $-2 < x < 0$, then $|-x-2| + |x-1| - \frac{|x|}{x} = \dots\dots\dots$

- If $P(x)$ and $Q(x)$ are two polynomials both of degree 6, then the degree of $P(x) - Q(x)$ is
- and the degree of $P(x) \cdot Q(x)$ is

- $(3 - 2x)^3 - 2(2 - 3x)(2 + 3x) = \dots\dots\dots$

- When rationalized, the expression $\frac{\sqrt{x}}{\sqrt[3]{x^2}} = \dots\dots\dots$