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MAC 1105.1A26
Cyr

Quiz 3
You must show all work to receive full credit!!

Problem 1. (2 pts) Simplify the expression $\left(\frac{12m^{3/2}n^{-5/2}}{mn}\right)^2$ so that the answer uses only positive exponents.

$\left(\frac{12m^{3/2}n^{-5/2}}{mn}\right)^2 = \left(\frac{12m^{3/2-1}}{n\cdot n^{5/2}}\right)^2 = \left(\frac{12m^{1/2}}{n^{7/2}}\right)^2 = \frac{(12m^{1/2})^2}{(n^{7/2})^2}$

$= \frac{12^2(m^{1/2})^2}{n^7} = \boxed{\frac{144m}{n^7}}$

Problem 2. (2 pts) Simplify the expression (assuming $x > 0$): $\sqrt{18x^3} - 3x\sqrt{32x} + 5\sqrt{8x^3}$.

$\sqrt{18x^3} - 3x\sqrt{32x} + 5\sqrt{8x^3} = \sqrt{3^2\cdot x^2\cdot 2x} - 3x\sqrt{4^2\cdot 2x} + 5\sqrt{2^2\cdot 2x\cdot x^2}$

$= 3x\sqrt{2x} - 3x(4)\sqrt{2x} + 5(2x)\sqrt{2x}$

$= 3x\sqrt{2x} - 12x\sqrt{2x} + 10x\sqrt{2x}$

$= \boxed{x\sqrt{2x}}$

Problem 3. (1 pt) Rationalize the denominator of $\frac{2}{7-\sqrt{3}}$.

$\frac{2}{7-\sqrt{3}}\cdot\frac{7+\sqrt{3}}{7+\sqrt{3}} = \frac{2(7+\sqrt{3})}{49-3} = \frac{2(7+\sqrt{3})}{46}$

$= \boxed{\frac{7+\sqrt{3}}{23}}$