

Homework 3 - Math 105

Name: _____

Do not use a calculator unless it says (Calc) next to the problem.

1. Multiply $\frac{4x + 12}{x^2 - 5x + 6} \cdot \frac{x^2 - 3x + 2}{x + 3}$. Simplify your answer as much as you can.

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2. Simplify $4x^2 \left(\frac{3}{6x^2 - 14x} - \frac{x}{x + 7} \right)$.

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3. Simplify $\sqrt{\frac{27x^4}{y^2 + y^2 + y^2}}$.

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4. Simplify $\sqrt[4]{8 \cdot 6 \cdot 27}$.
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5. Simplify $\frac{5}{3 - \sqrt{2}} \cdot \frac{3 + \sqrt{2}}{3 + \sqrt{2}}$.

6. Evaluate $(\sqrt{3} - \sqrt{12} + \sqrt{75})^2$.

7. Evaluate $\sqrt[3]{0.000125}$. Hint: *Convert the decimal to a fraction first.*

8. Express $2 \times 4 \times 8 \times 16 \times \cdots \times 1024$ as a power of 2. Hint: $1024 = 2^{10}$.
