Find the domain of \[ \frac{3x + 7}{(x - 2)^2 - (x - 1)^2} \]

Perform the indicated operation and simplify:
\[ \frac{8x^3 + 4x^2 - 18x - 9}{x^2 - 6x + 9} \div \frac{4x^2 + 8x + 3}{x^2 - 9} \]

Perform the indicated operation and simplify:
\[ \frac{x + 1}{x^2 - 36} - \frac{2}{6 - x} \]
4. Perform the indicated operation and simplify:

\[
\frac{2}{x - 5} \left( \frac{x^2 + 5x + 6}{3x^2 - 75} \div \frac{x^2 + 2x}{3x + 15} \right)
\]

5. Solve

\[
\frac{7x + 1}{x^2 - 9} - \frac{5}{x - 3} = \frac{10}{x + 3}
\]
6. Solve \( \frac{x - 3}{2x^2 - 7x - 4} - \frac{5}{2x^2 + 3x + 1} = \frac{x - 1}{x^2 - 3x - 4} \)

7. Write the expression in radical form: \((3x + 1)^{4/5}\)

8. Simplify the expression: \(\sqrt[3]{x^{21}}\)

9. Simplify the expression. \(\sqrt{48x^4y^{13}}\)

10. Simplify the expression. \(\sqrt[3]{40x^{17}}\)
Show all work and circle all answers. Write complex numbers in $a + bi$ form (Page 4 of 4)

11. Simplify the expression. $\sqrt[5]{(2x + 7)^4}$

12. Simplify the expression (i.e. reduce the index). Write your result in radical form. $\sqrt[10]{4}$

13. Solve $3\sqrt{7x} - 24 = -9\sqrt{7x}$

14. Solve $\sqrt{x} - 1 = \sqrt{5 - x}$

15. Let $f(x) = -2\sqrt{x - 4} + 5$. Find $x$ when $f(x) = 1$. 