1) Factor completely: \(6x^2 - 19x - 10\)

2) Simplify: \(\frac{6x^{-4}y^3}{(2x^4y^{-2})^2}\)

3) Solve the inequality and graph the solution on the given number line: \(x^2 - 5x - 36 \geq 0\)

4) Find the vertex of the parabola given by the equation \(f(x) = 2(x - 5)^2 + 2\).

5) Graph the following function:
   \[f(x) = (x + 2)^2 - 6\]

6) Simplify: \(\frac{x^2 + 2x - 8}{5x + 20}\)

7) Multiply and simplify: \(\frac{x^2 + 4x - 5}{x^2 - 4x - 12} \cdot \frac{x - 6}{x + 5}\)

8) Divide and simplify: \(\frac{(x + 2)(x - 3)}{x + 7} \div \frac{(x + 2)(x + 1)}{(x + 7)(x + 3)}\)
9) Add and simplify: \[
\frac{3}{2x} + \frac{5x}{4}
\]

10) Subtract and simplify: \[
\frac{7}{x+1} - \frac{6}{x}
\]

11) Simplify: \[
\frac{2}{5} + \frac{3}{x} \cdot \frac{2}{x} + \frac{x}{4}
\]

12) Solve for \(x\): \[
\frac{2}{x} + \frac{8}{x+2} = \frac{34}{x(x+2)}
\]

13) Find each root that is a real number. Assume variables are positive:
   a) \(-\sqrt{25}\)
   b) \(\frac{4}{\sqrt{64}}\)
   c) \(\frac{3}{\sqrt{-27}}\)

   d) \(\sqrt{x^8}\)
   e) \(\sqrt{121x^5}\)
   f) \(81^{1/4}\)

   g) \(8^{2/3}\)
   h) \(x^{5} \cdot x^{3}\)