In problems 1 and 2, evaluate the given expression. Give your answer as a fraction in lowest terms.

1. \[ \frac{2}{4/5} = 2 \div \frac{4}{5} = 2 \times \frac{5}{4} = \frac{5}{2} \text{ or } 2 \frac{1}{2} \]

2. \[ \frac{7}{\frac{1}{3} + \frac{1}{4}} = \frac{7}{\frac{4}{12} + \frac{3}{12}} = \frac{7}{\frac{7}{12}} = 7 \div \frac{7}{12} = 7 \times \frac{12}{7} = 12 \]

In problem 3, simplify by adding the fractions. Give your answer as a fraction in lowest terms.

3. \[ \frac{1}{x+1} + \frac{3}{x-2} = \frac{x-2}{(x-2)(x+1)} + \frac{3(x+1)}{(x-2)(x+1)} = \frac{x-2 + 3(x+1)}{(x-2)(x+1)} = \frac{4x+1}{(x-2)(x+1)} \]
In problem 4, solve the given equation.

\[ \frac{x}{2} - \frac{x}{3} = 5 \]

\[ \frac{3x}{6} - \frac{2x}{6} = 5 \]

\[ \frac{x}{6} = 5 \]

\[ x = 30 \]

In problems 5 and 6, multiply the given polynomials.

5. \((x - 3)(x - 5) = x^2 - 5x - 3x + 15 = x^2 - 8x + 15\)

6. \((x^2 + 4)(x - 2) = x^3 - 2x^2 + 4x - 8\)

In problems 7 and 8, factor the given polynomials.

7. \(x^2 - 7x = x(x - 7)\)

8. \(x^2 + 6x + 8 = (x + 4)(x + 2)\)
In problem 9, solve the given equation.

9. \((x - 3)(2x - 5) = 0\)

\[
\begin{align*}
\frac{x - 3}{2} &= 0 \\
\frac{x - 5}{2} &= 0 \\
\therefore x &= 3 \\
\therefore x &= 5/2
\end{align*}
\]

In problem 10, use the quadratic formula to solve the given equation. Round your answer to two decimal places.

\[
x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}
\]

10. \(5x^2 + 3x - 7 = 0\)

\[
\begin{align*}
a &= 5 \\
b &= 3 \\
c &= -7
\end{align*}
\]

\[
x = \frac{-3 \pm \sqrt{3^2 - 4(5)(-7)}}{2(5)}
\]

\[
\begin{align*}
x &= \frac{-3 \pm \sqrt{9 + 140}}{10} \\
x &= \frac{-3 \pm \sqrt{149}}{10}
\end{align*}
\]

\[
\begin{align*}
&\frac{-3 + \sqrt{149}}{10} \approx .92 \\
&\frac{-3 - \sqrt{149}}{10} \approx -1.52
\end{align*}
\]

\[
x \approx .92 \text{ or } -1.52
\]
Practice Quiz B

In problems 1 and 2, evaluate the given expression. Give your answer as a fraction in lowest terms.

1. \( \frac{\frac{3}{7}}{5} = \frac{\frac{3}{7}}{5} \times \frac{1}{5} = \frac{3}{35} \)

\[
\begin{align*}
2. \quad \frac{1}{2} + \frac{1}{4} & = \frac{2}{4} + \frac{1}{4} = \frac{3}{3} = \frac{3}{4} \div 3 = \frac{3}{4} \times \frac{1}{3} \\
& = \frac{1}{4}
\end{align*}
\]

In problem 3, simplify by adding the fractions. Give your answer as a fraction in lowest terms.

3. \( \frac{3}{x} + \frac{5}{x^2} = \frac{3x}{x^2} + \frac{5}{x^2} = \frac{3x + 5}{x^2} \)
In problem 4, solve the given equation.

\[ \frac{2}{x} + \frac{1}{3x} = 2 \]

\[ \frac{6}{3x} + \frac{1}{3x} = 2 \]

\[ \frac{7}{3x} = 2 \]

\[ 7 = 6x \]

\[ x = \frac{7}{6} \]

In problems 5 and 6, multiply the given polynomials.

5. \((x + 2)^2 = (x + 2)(x + 2) = \frac{x^2 + 2x + 2x + 4}{x^2 + 4x + 4} = \frac{x^2 + 4x + 4}{x^2 + 4x + 4} \]

6. \((x + 3y)(x - 2y) = x^2 - 2xy + 3xy - 6y^2 = \frac{x^2 + xy - 6y^2}{x^2 + xy - 6y^2} \]

In problems 7 and 8, factor the given polynomials.

7. \(x^2 - 9 = (x + 3)(x - 3)\)

8. \(x^2 - 7x + 12 = (x - 3)(x - 4)\)
In problem 9, solve the given equation.

9. \( x^2 - x = 6 \)

\[ x^2 - x - 6 = 0 \]

\[(x - 3)(x + 2) = 0 \]

\[ x - 3 = 0 \quad \text{or} \quad x + 2 = 0 \]

\[ x = 3 \quad \text{or} \quad x = -2 \]

In problem 10, use the quadratic formula to solve the given equation. Round your answer to two decimal places.

\[ x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \]

10. \( 2x^2 = 4x + 5 \)

\[ 2x^2 - 4x - 5 = 0 \]

\[ a = 2 \]
\[ b = -4 \]
\[ c = -5 \]

\[ x = \frac{-(-4) \pm \sqrt{(-4)^2 - 4(2)(-5)}}{2(2)} \]

\[ x = \frac{4 \pm \sqrt{16 + 40}}{4} \]

\[ x = \frac{4 \pm \sqrt{56}}{4} \]

\[ x = \frac{4 + \sqrt{56}}{4} \approx 2.87 \]

\[ x = \frac{4 - \sqrt{56}}{4} \approx -0.87 \]

\[ x \approx 2.87 \text{ or } -0.87 \]