Practice Quiz A, Group 1

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

1. \( \frac{2}{4/5} \)

\[
2 \div \frac{4}{5} = 2 \times \frac{5}{4} = \frac{10}{4} = \boxed{\frac{5}{2}}
\]

2. \( \frac{7}{\frac{1}{3} + \frac{1}{4}} \)

\[
\frac{1}{3} + \frac{1}{4} = \frac{4}{12} + \frac{3}{12} = \frac{7}{12}
\]

\[
\frac{7}{\frac{7}{12}} = 7 \div \frac{7}{12} = 7 \times \frac{12}{7} = \boxed{12}
\]
In problems 3 through 5, solve the given equation.

3. \( x + \frac{x}{2} = 1 \)

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

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

\[
3x = 2
\]

\[
\chi = \frac{2}{3}
\]

4. \( 3x^2 - 5 = 7 \)

\[
3x^2 = 12
\]

\[
x^2 = 4
\]

\[
\chi = \pm 2
\]

5. \( \sqrt{x-1} = 5 \)

\[
x - 1 = 25
\]

\[
\chi = 26
\]
In problems 6 and 7, multiply the given polynomials.

6. \((x - 3)(x - 5)\)

\[
\begin{align*}
\chi^2 - 5\chi - 3\chi + 15 \\
\hline
\chi^2 - 8\chi + 15
\end{align*}
\]

7. \((x^2 + 4)(x - 2)\)

\[
\begin{align*}
\chi^3 - 2\chi^2 + 4\chi - 8
\end{align*}
\]
In problems 8 and 9, factor the given polynomials.

8. \( x^2 - 7x \)
\[
(\text{factor out } x) \quad x(x - 7)
\]

9. \( x^2 + 6x + 8 \)
\[
(x + 2)(x + 4)
\]

In problem 10, solve the given equation.

10. \((x - 3)(2x - 6) = 0\)

\[
\begin{align*}
\text{if } x - 3 &= 0 \\
\quad x &= 3 \\
\text{or if } 2x - 6 &= 0 \\
\quad 2x &= 6 \\
\quad x &= 3
\end{align*}
\]

\[
\boxed{x = 3}
\]
Practice Quiz B, Group 1

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

1. \(\frac{\frac{3}{7}}{5}\)

\[
\frac{\frac{3}{7}}{\frac{5}{1}} = \frac{3}{7} \times \frac{1}{5} = \frac{3}{35}
\]

2. \(\frac{\frac{1}{2} + \frac{1}{4}}{3}\)

\[
\frac{\frac{1}{2} + \frac{1}{4}}{3} = \frac{\frac{2}{4} + \frac{1}{4}}{3} = \frac{3}{4}
\]

\[
\frac{\frac{3}{4}}{3} = \frac{\frac{3}{4}}{\frac{3}{1}} = \frac{3}{4} \times \frac{1}{3} = \frac{1}{4}
\]
In problems 3 through 5, solve the given equation.

3. \( \frac{2}{x} + \frac{1}{3x} = 1 \)

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

\[
\frac{7}{3x} = 1
\]

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

4. \( 2x^2 + 2 = 20 \)

\[
2x^2 = 18
\]

\[
x^2 = 9
\]

\[
x = \pm 3
\]

5. \( 2\sqrt{x} + 1 = 9 \)

\[
2\sqrt{x} = 8
\]

\[
\sqrt{x} = 4
\]

\[
x = 16
\]
In problems 6 and 7, multiply the given polynomials.

6. \((x + 2)^2 = (x + 2)(x + 2)\)
   \[= x^2 + 2x + 2x + 4\]
   \[= \boxed{x^2 + 4x + 4}\]

7. \((x + 3y)(x - 2y)\)
   \[= x^2 - 2xy + 3xy - 6y^2\]
   \[= \boxed{x^2 + xy - 6y^2}\]
In problems 8 and 9, factor the given polynomials.

8. \( x^2 - 9 \)

\[
(x + 3)(x - 3)
\]

9. \( x^2 - 7x + 12 \)

\[
(x - 3)(x - 4)
\]

In problem 10, solve the given equation.

10. \( x^2 + 9x + 18 = 0 \)

\[
(x + 6)(x + 3) = 0
\]

\[ x + 6 = 0 \quad \text{or} \quad x + 3 = 0 \]

\[ x = -6 \quad \text{or} \quad x = -3 \]