Chapter 10

Lesson 10.1.1

10-1. 1 is special because any non-zero number divided by itself is 1, and anything multiplied by 1 remains the same.

10-2. **a.** yes   **b.** You cannot divide by zero.   **c.** Yes; $x \neq 3$

d. Answers vary; sample solutions. $\frac{x}{x}$, $\frac{x+5}{x+5}$, and $\frac{n^2}{n^2}$.

e. Yes, because $\frac{z}{z} = 1$. The fact that anything multiplied by 1 stays the same is called the Identity Property of Multiplication.

10-3. **a.** 1, $x \neq 0$ **b.** $\frac{x}{3}$, $x \neq 0$ **c.** $\frac{x+5}{x-1}$, $x \neq 1$ or 2   **d.** 1, $x \neq 0$

e. hk, $h \neq 0$ **f.** $\frac{2m-5}{3m+1}$, $x \neq -6$ or $-\frac{1}{3}$ **g.** $2(n-2)$, $x \neq 2$

h. $\frac{1}{4x-1}$, $x \neq \frac{1}{4}$ or $\frac{3}{2}$

10-4. **a.** Yes; you can tell by substituting any number (other than zero).
b. No; you can tell by substituting a number (other than 1).
c. They can be simplified like this when the numerator and denominator are single terms and are products of factors.
d. (*i*) is not simplified correctly; (*ii*) is simplified correctly.

10-5. **a.** $\frac{x+3}{x-3}$ for $x \neq \pm 3$ **b.** $\frac{2x-5}{3x+1}$ for $x \neq -\frac{1}{3}, -2$ **c.** 1   **d.** $\frac{x}{2}$

10-7. **a.** 1   **b.** none   **c.** 2   **d.** 1

10-8. Yes, he can.   **a.** $x = 2$ **b.** Divide both sides by 100.

10-9. **a.** $x < 0$ **b.** $x \leq -4$

10-10. **a.** $x \neq -4$ or 2, $\frac{x+4}{x-2}$ **b.** $x \neq -2$ or 3, $\frac{2(x+2)}{(x-3)^2}$

10-11. **a.** $\frac{3}{7}$ **b.** $\frac{5}{4}$

10-12. B