EXTRA PRACTICE — Exercises

Unit VI – Second Degree Relations and Higher - Algebraic Fractions
Part A – Operations
Lesson 1 – Simplifying

For each of the following, find all restricted values and state the domain of the fraction.

1. $\frac{2x(x-5)}{(x-5)(x^2-1)}$

2. $\frac{p^2-25}{p+6}$

3. $\frac{3x-15}{x^2-25}$

4. $\frac{5x^2-25x}{2x}$

5. $\frac{x^2-9x}{x^2-7x}$

6. $\frac{x^2-5x}{x^2-7x+12}$

7. $\frac{3x^2+5}{2x-9}$

8. $\frac{x^2-9}{3x+15}$

9. $\frac{-x^2+8x-12}{3x^3-2x^2-8x}$

Simplify each of the following by factoring and looking for 1's. Assume no denominator is zero.

10. $\frac{5x}{10x^2-20x}$

11. $\frac{2x^3-4x^2}{6x^3}$

12. $\frac{(^-3t^2u)^3}{(6tu^2)^2}$

13. $\frac{6m^2-4m}{9m^2-12m+4}$

14. $\frac{79a^2b}{158a^3bc}$

15. $\frac{x^2-8x-20}{12x-x^2-20}$

16. $\frac{5a^4-a^4m}{a^4m^2-7a^4m+10a^4}$

17. $\frac{1-x^2}{x+1}$

18. $\frac{-x^2+8x-12}{3x^2-2x-8}$

EXTRA PRACTICE — Answer Key

Unit VI – Second Degree Relations and Higher - Algebraic Fractions
Part A – Operations
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For each of the following, find all restricted values and state the domain of the fraction.

1. The restricted values of x are 5, $^{-}1$, and 1 — Domain = $\{x \mid x \text{ is a real number, } x \neq 5,\ ^{-}1, \text{ or } 1\}$

2. The restricted value of p is $^{-}6$. — Domain = $\{p \mid p \text{ is a real number, } p \neq 6\}$

3. The restricted values of x are 5 and $^{-}5$. — Domain = $\{x \mid x \text{ is any real number, } x \neq 5,\ ^{-}5\}$

4. The restricted value of x is 0. — Domain = $\{x \mid x \text{ is any real number, } x \neq 0\}$

5. The restricted values of x are 0 and 7. — Domain = $\{x \mid x \text{ is any real number, } x \neq 0, 7\}$

6. The restricted values of x are 3 and 4. — Domain = $\{x \mid x \text{ is any real number, } x \neq 3, 4\}$

7. The restricted value of x is $\frac{9}{2}$. — Domain = $\{x \mid x \text{ is any real number, } x \neq \frac{9}{2}\}$

8. The restricted value of x is $^{-}5$. — Domain = $\{x \mid x \text{ is any real number, } x \neq ^{-}5\}$

9. The restricted values of x are 0, $\frac{^{-}4}{3}$, and 2. — Domain = $\{x \mid x \text{ is any real number, } x \neq 0,\ \frac{^{-}4}{3}, 2\}$

Simplify each of the following by factoring and looking for 1's. Assume no denominator is zero.

10. $\frac{1}{2(x-2)}$

11. $\frac{x-2}{3x}$

12. $\frac{^{-}3t^4}{4u}$

13. $\frac{2m}{3m-2}$

14. $\frac{1}{2ac}$

15. $\frac{x+2}{(^{-}1)(x-2)}$ *or* $\frac{x+2}{^{-}x+2}$

16. $\frac{^{-}1}{m-2}$

17. $(^{-}1)(x-1)$ *or* $^{-}x+1$

18. $\frac{^{-}x+6}{3x+4}$