Worksheet 1.3.2: Simplifying Rational Algebraic Expressions

A. Simplest Form or Not

Write True if the given rational algebraic expression is in simplest form or False if it is not. One point each.

1. $\dfrac{m-1}{m^2-1}$

2. $\dfrac{x+y}{x-y}$

3. $\dfrac{x^2-4}{x+2}$

4. $\dfrac{x-1}{x-2}$

5. $\dfrac{a^2-9}{a-3}$

B. Finding Common Factors

Find the factored form of each algebraic expression. Choose the answer from the box. Write the letter only. One point each.

> a. $a(a+3)$
>
> b. $3m\,(m+5)$
>
> c. $(a-3)\,(a+3)$
>
> d. $8a^2\,(2n+3)$
>
> e. $(x-5)\,(x+3)$
>
> f. $2n^2\,(n-3)$
>
> g. $2(y-3)$
>
> h. $(m-4)\,(m+2)$
>
> i. $(m-1)\,(2m-1)$
>
> j. $(x+2)(x-2)$

6. x^2-4

7. $2y-6$

8. a^2+3a

9. m^2-2m-8

10. $3m^2+15m$

11. a^2-9

12. $2n^3-6n^2$

13. $2m^2-3m+1$

14. $16a^2n+24a^2$

15. $x^2-2x-15$

C. Simplifying Rational Expressions

Find the simplest form of each rational algebraic expression. Choose the answer from the box. Answers may be repeated. Write the letter only. One point each.

> a. $2x+1$
>
> b. x
>
> c. $x-2$
>
> d. $3x-6$
>
> e. $x+4$
>
> f. $2x-3$
>
> g. $2x$
>
> h. $2x+5$

16. $\dfrac{x^2+3x}{x+3}$

17. $\dfrac{2x^2+8x}{2x}$

18. $\dfrac{x^2-16}{x-4}$

19. $\dfrac{x^3+64}{x^2-4x+16}$

20. $\dfrac{2x^2 - 9x - 5}{x - 5}$

21. $\dfrac{2x^2 + 4x}{x + 2}$

22. $\dfrac{4x^3 - 8x^2}{4x^2}$

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

24. $\dfrac{8x^3 - 27}{4x^2 + 6x + 9}$

25. $\dfrac{3x^2 - 12x + 12}{x - 2}$