

Quiz #3: Rational Algebraic Expressions

A. True or False

Write True if the expression is a rational algebraic expression or False if it is not. One point each.

1. $\frac{4x}{x+8}$

4. $\frac{x-1}{\sqrt{2x+3}}$

2. $\frac{3\sqrt{x}+1}{19}$

5. $\frac{3}{a-3}$

3. $\frac{x^2-4}{x^{\frac{1}{3}}}$

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

6. $\frac{x^2+3x}{x+3}$

11. $\frac{2x^2+4x}{x+2}$

7. $\frac{2x^2+8x}{2x}$

12. $\frac{4x^3-8x^2}{4x^2}$

8. $\frac{x^2-16}{x-4}$

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

9. $\frac{x^3+64}{x^2-4x+16}$

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

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

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

C. Multiplying and Dividing Rational Expressions

Perform the indicated operation. Choose the answer from the box. Write the letter only. One point each.

a. $\frac{4(x-8)}{x+2}$

b. $\frac{2}{3x(x-5)}$

c. $\frac{3}{2x(x+4)}$

d. $\frac{7}{x-7}$

e. $\frac{5}{x+6}$

f. $\frac{x+3}{x-10}$

g. $2(x-1)$

h. $\frac{8x(x-2)}{x-9}$

i. $\frac{10x^2}{x+2}$

j. $\frac{x+10}{3}$

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

17. $\frac{1}{x+5} \cdot \frac{7x+35}{x-7}$

18. $\frac{x^2-17x+72}{x+2} \cdot \frac{4x+4}{x^2-8x-9}$

19. $\frac{x-4}{7x-28} \cdot \frac{7x+70}{3}$

20. $\frac{4x-20}{x^2-10x+25} \cdot \frac{x+7}{6x^2+42x}$
21. $\frac{3}{2x} \div \frac{7x+28}{7}$

22. $\frac{12x+12}{x-9} \div \frac{12x+12}{8x^2-16x}$

23. $\frac{5}{7x^2} \div \frac{x^2+12x+36}{7x^3+42x^2}$

24. $\frac{10x^3+100x^2}{6x^2-48x} \div \frac{x^2+12x+20}{6x^2-48x}$

25. $\frac{x+3}{x^2-x-90} \div \frac{x-1}{x^2+8x-9}$