

RATIONAL EXPRESSIONS PRACTICE

REMINDERS

When adding or subtracting fractions, you need a common denominator.

When multiplying or dividing fractions, a common denominator is not necessary.

To divide fractions, multiply the first fraction by the reciprocal of the second.

Canceling is allowed *only* for terms that are *factors* of the top and bottom.

Simplify. Leave you answer in factored form.

1. $\frac{120}{140}$

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

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

4. $\frac{6x+9}{3x}$

5. $\frac{4x^2+8x^3}{6x^2+3x}$

6. $\frac{x-3}{3-x}$

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

8. $\frac{x^2-4x-12}{x^2-7x-18}$

9. $\frac{4x^2-8x-140}{2x^2-98}$

10. $\frac{5x^2+40x+80}{10x^2+100x+210}$

Multiply or divide, then simplify.

11. $\frac{x^3}{4x+6} \cdot \frac{2x+10}{3x^2+9x}$

12. $\frac{3x^2+9x}{2x+8} \cdot \frac{x^2-16}{2x^2+14x}$

13. $\frac{7x-49}{9x^3+27x} \div \frac{x^2-2x-35}{x^2-9}$

14. $\frac{2x^2+22x+48}{x^3-81x} \div \frac{4x^3-28x^2-72x}{x^3-7x^2-18x}$

15. $\frac{x^2-25}{2x+6} \div \frac{3x^2+30x+75}{6x^2+18x}$

16. $\frac{x^2+13x+36}{x^2+16x+63} \cdot \frac{4x^3-4x^2-168x}{2x^3+4x^2+48x}$

17. $\frac{2x^2-128}{x^3-81x} \cdot \frac{4x^3-28x^2-72x}{x^3-7x^2-18x}$

Add or subtract.

18. $\frac{7+x}{x} + \frac{2-x}{x}$

19. $\frac{x-2}{x^2} - \frac{3-2x}{x^2}$

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

21. $\frac{2x+1}{x^2-7x+6} - \frac{x+3}{x^2-5x-6}$

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

23. $\frac{x^2}{x-y} + \frac{y^3}{y-x}$

24. $\frac{x-1}{3x+15} - \frac{3-x}{5x+25}$

25. $\frac{7xy}{x^2-y^2} - \frac{x-y}{x+y}$

Solve.

26. $\frac{x}{10} = \frac{2}{5} + \frac{3}{4}$

27. $\frac{1}{5} - \frac{5}{8} = \frac{1}{x}$

28. $\frac{3}{x-1} = \frac{4}{x+1}$

29. $\frac{2}{x+4} + \frac{1}{x-4} = \frac{16}{x^2-16}$

30. $\frac{12}{x} - \frac{12}{x-1} = \frac{2}{x}$

31. $\frac{1}{2} - \frac{4}{9x} = \frac{-1}{6x} + \frac{4}{9}$

32. $\frac{x-6}{x+9} = \frac{2}{7}$

33. $\frac{5}{x+4} = \frac{3}{x-2}$

34. $\frac{2x+2}{2x} = \frac{3}{2}$