

Adding and Subtracting Rationals

Date _____ Period _____

Simplify each expression.

1) $\frac{9v^2 - 81v}{v^2 - 3v - 54}$

$$\frac{9v}{v+6}$$

2) $\frac{p^2 + 19p + 90}{p^2 + 14p + 40}$

$$\frac{p+9}{p+4}$$

3) $\frac{7v^2 + 63v}{3v^2 + 21v} \cdot \frac{3v^2 + 21v}{v^2 + 13v + 36}$

$$\frac{7v}{v+4}$$

4) $\frac{28r + 24}{r^2 - 7r - 18} \cdot \frac{r + 2}{56r + 48}$

$$\frac{1}{2(r-9)}$$

5) $\frac{6x}{20x - 50} \div \frac{6x^2 + 42x}{20x - 50}$

$$\frac{1}{x+7}$$

6) $\frac{x^2 + 3x - 40}{32 - 4x - x^2} \div \frac{x^2 - 12x + 32}{x^2 - 8x + 16}$

$$\frac{-x+5}{x-8}$$

7) $\frac{n-4}{n^2 - 6n + 5} - \frac{n+1}{n^2 - 6n + 5}$

$$-\frac{5}{n^2 - 6n + 5}$$

8) $\frac{p+1}{5p+15} + \frac{p+3}{5p+15}$

$$\frac{2p+4}{5p+15}$$

9) $\frac{m+2}{9m+3} - \frac{m-6}{9m+3}$

$$\frac{8}{9m+3}$$

10) $\frac{3}{30v^2 + 18v} + \frac{6v+2}{30v^2 + 18v}$

$$\frac{5+6v}{30v^2 + 18v}$$

11) $\frac{m-1}{5m^2 + 16m - 16} + \frac{m+4}{5m^2 + 16m - 16}$

$$\frac{2m+3}{5m^2 + 16m - 16}$$

12) $\frac{n+1}{9n^2 - 3n} + \frac{n-1}{9n^2 - 3n}$

$$\frac{2}{9n-3}$$

$$13) \frac{5}{3} - \frac{p+4}{2p^2-8p}$$

$$\frac{10p^2 - 43p - 12}{6p(p-4)}$$

$$14) \frac{5}{2x} - \frac{x-2}{9x^2+18x}$$

$$\frac{43x+94}{18x(x+2)}$$

$$15) \frac{6}{3v^2+6v} - \frac{3v}{2}$$

$$\frac{4-3v^3-6v^2}{2v(v+2)}$$

$$16) \frac{4}{2v} + \frac{v-5}{9v^2+6v}$$

$$\frac{19v+7}{3v(3v+2)}$$

$$17) \frac{3v}{2v^2-16v+30} - \frac{6}{3}$$

$$\frac{-4v^2+35v-60}{2(v-5)(v-3)}$$

$$18) \frac{5x}{x+4} - \frac{4x}{6x-10}$$

$$\frac{13x^2-33x}{(3x-5)(x+4)}$$

$$19) \frac{2}{3n} + \frac{n+4}{2n^2-12n+16}$$

$$\frac{7n^2-12n+32}{6n(n-4)(n-2)}$$

$$20) \frac{4b}{b+6} + \frac{4b}{3b+3}$$

$$\frac{16b^2+36b}{3(b+6)(b+1)}$$

$$21) \frac{4y}{2x^2y} + \frac{x+6y}{6}$$

$$\frac{12+x^3+6x^2y}{6x^2}$$

$$22) \frac{5}{6a^2} + \frac{6}{5b^2}$$

$$\frac{25b^2+36a^2}{30a^2b^2}$$

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

$$\frac{x^2-y^2}{yx^2}$$

$$24) \frac{6x}{2y^3} + \frac{2y}{3y}$$

$$\frac{9x+2y^3}{3y^3}$$