

Operations with Rational Expressions WS#1

Simplify each and state the excluded values. Show your work.

$$1) \frac{6k}{3k^2 - 3k - 6} + \frac{4}{3k}$$

$$2) \frac{3}{2p - 1} + \frac{4}{p + 2}$$

$$3) \frac{3}{x + 2} - \frac{3}{x - 1}$$

$$4) \frac{6}{p - 5} - \frac{3p}{p - 1}$$

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

$$6) \frac{3}{x + 6} - \frac{3}{x + 1}$$

$$7) \frac{5n}{2} - \frac{n + 5}{2n^2 + 6n - 36}$$

$$8) \frac{n + 5}{n^2 + 6n + 5} - \frac{5n}{3}$$

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

$$10) \frac{5x}{x - 4} + \frac{2}{x - 3}$$

$$11) \frac{3}{p - 4} - \frac{5}{2p - 6}$$

$$12) \frac{x + 6}{3x^2 - 3x - 60} - \frac{5}{3}$$

Simplify each and state the excluded values. Show your work.

$$13) \frac{m^2 + 14m + 49}{70 + 3m - m^2} \cdot \frac{m^2 - 17m + 70}{m - 5}$$

$$14) \frac{8n^3 - 24n^2}{8n + 80} \div \frac{7}{8n + 80}$$

$$15) \frac{8n - 64}{4n - 32} \div \frac{1}{4n - 16}$$

$$16) \frac{x^2 + 3x - 70}{x - 7} \div \frac{2x + 20}{x^2 + 9x + 18}$$

$$17) \frac{6n + 36}{20n - 20} \cdot \frac{12n^2 - 12n}{n + 6}$$

$$18) \frac{x^2 + 12x + 32}{4x + 16} \cdot \frac{20x + 16}{10x + 8}$$

$$19) \frac{n^2 + 16n + 64}{4n^2 + 32n} \div \frac{10n + 20}{10}$$

$$20) \frac{k^2 + 6k - 40}{2k^2 - 8k} \cdot \frac{k^2 + 14k + 49}{k^2 + 17k + 70}$$

$$21) \frac{7k + 21}{2k^3 + 10k^2} \cdot \frac{9}{7k + 21}$$

$$22) \frac{12x + 4}{21x + 7} \div \frac{6x - 30}{7x - 35}$$

$$23) \frac{p^2 - 8p - 9}{p^2 - 6p - 27} \cdot \frac{2p + 10}{2p + 2}$$

$$24) \frac{10r^2 - 10r}{r^2 - 11r + 10} \div \frac{10r^2 - 30r}{r^2 + 2r - 15}$$