

Multiplying and Dividing Rational Expressions

Date _____ Period _____

REVIEW: Simplify each and state the excluded values.

1) $\frac{12n^2}{8n}$

2) $\frac{24}{12x + 36}$

3) $\frac{x + 2}{3x^2 + 2x - 8}$

4) $\frac{2x^2 + 10x - 100}{3x^2 + 29x - 10}$

Simplify each and state the excluded values.**HINT: When finding excluded values for division problems, you must consider the denomiators in the original problem, as well as the denominators after you have rewritten the problems as multiplication.**

5) $\frac{4x}{3x} \cdot \frac{4x}{2}$

6) $\frac{8b}{3} \cdot \frac{5}{7}$

7) $\frac{7}{10r} \div 9r^4$

8) $\frac{8}{8b} \div \frac{7b}{9}$

$$9) \frac{(x+2)(x-5)}{8(2x+3)} \cdot \frac{8(2x+3)}{x-5}$$

$$10) \frac{(m-7)(m-1)}{m+2} \cdot \frac{(m+7)(m+2)}{(m-7)(m-1)}$$

$$11) ((m-1)(7m+5)) \div \frac{4(7m+5)}{4}$$

$$12) \frac{9}{14(a+1)} \div \frac{6}{12(a+1)}$$

$$13) \frac{7r^2+14r}{5r^2} \cdot \frac{r-3}{r+2}$$

$$14) \frac{1}{3b+21} \cdot \frac{b^2-b-12}{b-4}$$

$$15) (70n^3 + 10n^2) \div \frac{14n^2 + 58n + 8}{2n + 8}$$

$$16) \frac{3x + 5}{x - 4} \div \frac{18x^2 + 30x}{x + 2}$$

$$17) \frac{56m - 40}{m + 2} \cdot \frac{8m + 16}{40m^2 - 56m^3}$$

$$18) \frac{n^2 - 25}{4n + 4} \cdot \frac{n - 4}{n^2 - 25}$$

$$19) \frac{15x - 12}{5x^2 - 44x + 32} \div \frac{9x - 27}{3x^2 - 15x + 18}$$

$$20) \frac{n^2 + 18n + 80}{3n + 7} \div \frac{7n^2 + 24n + 20}{21n^2 + 79n + 70}$$

Answers to Multiplying and Dividing Rational Expressions

$$1) \frac{3n}{2}; \{0\}$$

$$3) \frac{1}{3x-4}; \left\{\frac{4}{3}, -2\right\}$$

$$5) \frac{8x}{3}; \{0\}$$

$$7) \frac{7}{90r^5}; \{0\}$$

$$9) x+2; \left\{-\frac{3}{2}, 5\right\}$$

$$11) m-1; \left\{-\frac{5}{7}\right\}$$

$$13) \frac{7(r-3)}{5r}; \{0, -2\}$$

$$15) 10n^2; \left\{-4, -\frac{1}{7}\right\}$$

$$17) -\frac{8}{m^2}; \left\{-2, 0, \frac{5}{7}\right\}$$

$$19) \frac{x-2}{x-8}; \left\{8, \frac{4}{5}, 3, 2\right\}$$