

4.3 Dividing Rational Expressions

Date _____

Simplify each and state the excluded values.

1)
$$\frac{63x+9}{x+9} \div \frac{63x^2+9x}{9x}$$

2)
$$\frac{8}{5n^2-15n} \div \frac{1}{5n}$$

3)
$$\frac{v^2+13v+40}{5v^2} \div \frac{v+5}{5v^2}$$

4)
$$\frac{1}{r-4} \div \frac{10r}{10r^2-90r}$$

5)
$$\frac{x^2+x-6}{6x-12} \div \frac{x+3}{4x^2}$$

6)
$$\frac{1}{v+2} \div \frac{5v^2}{v^2+10v+16}$$

7)
$$\frac{35n+28}{10} \div \frac{35n+28}{8}$$

8)
$$\frac{2x^2-18x}{7} \div \frac{2x}{6}$$

$$9) \frac{a^2 + 19a + 90}{a^2 + a - 72} \div \frac{2a^2 - 20a}{a - 10}$$

$$10) \frac{9p + 63}{9p - 27} \div \frac{p + 6}{6p + 36}$$

$$11) \frac{2n^2 + 10n}{n^2 + n - 20} \div \frac{n - 7}{n^2 - 4n - 21}$$

$$12) \frac{10n - 60}{n^2 - 11n + 30} \div \frac{2n - 12}{n^2 - 11n + 30}$$

$$13) \frac{a^2 + 11a + 18}{3a + 6} \div \frac{1}{3a + 6}$$

$$14) \frac{2r + 4}{r + 8} \div \frac{r^2 + 10r + 16}{6r^2 + 48r}$$

$$15) \frac{6x + 12}{x^2 + 10x + 16} \div \frac{x^2 + 14x + 40}{x^2 + 12x + 32}$$

$$16) \frac{4m - 32}{m^2 + 6m - 27} \div \frac{1}{m^2 + 6m - 27}$$

Answers to 4.3 Dividing Rational Expressions

- 1) $\frac{9}{x+9}; \left\{-9, 0, -\frac{1}{7}\right\}$ 2) $\frac{8}{n-3}; \{0, 3\}$ 3) $v+8; \{0, -5\}$ 4) $\frac{r-9}{r-4}; \{4, 0, 9\}$
5) $\frac{2x^2}{3}; \{2, 0, -3\}$ 6) $\frac{v+8}{5v^2}; \{-2, -8, 0\}$ 7) $\frac{4}{5}; \left\{-\frac{4}{5}\right\}$ 8) $\frac{6(x-9)}{7}; \{0\}$
9) $\frac{a+10}{2a(a-8)}; \{8, -9, 10, 0\}$ 10) $\frac{6(p+7)}{p-3}; \{3, -6\}$ 11) $\frac{2n(n+3)}{n-4}; \{4, -5, 7, -3\}$
12) $5; \{6, 5\}$ 13) $(a+9)(a+2); \{-2\}$ 14) $\frac{12r}{r+8}; \{-8, 0, -2\}$
15) $\frac{6}{x+10}; \{-8, -2, -4, -10\}$ 16) $4(m-8); \{3, -9\}$